Appendix 7: Environmental Management Programme (EMPr)

PROPOSED UPGRADE OF THE EXISTING SHIP REPAIR FACILITY AT THE PORT OF MOSSEL BAY, WESTERN CAPE

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

OCTOBER 2018

DRAFT

PREPARED FOR: TRANSNET NATIONAL PORTS AUTHORITY (TNPA)

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Title and Approval Page

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List of Abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
DEA	Department of Environmental Affairs
DSP	Dumping at Sea Permit
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EO	Environmental Officer
GN	Government Notice
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
IAPs	Interested and Affected Party
NEMA	National Environmental Management Act (Act No. 107 of 1998
OHS	Occupational Health and Safety
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
TNPA	Transnet National Ports Authority
Tons	Tonnes
WUL	Water Use License
WULA	Water Use License Application

Definitions

Auditing	A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis.
Environment	The surroundings in which humans exist and which comprise: • The land, water and atmosphere of the earth. • Micro-organisms, plant and animal life. • Any part or combination of a) and b) and the interrelationships among and between them. • The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.
Environmental Aspect	Those components of the company's activities, products and services that are likely to interact with the environment.
Environmental Authorisation	The written statement from the relevant environmental authority in terms of the National Environmental Management Act (Act 107 of 1998), with or without conditions, that records its approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.
Environmental Feature	Elements and attributes of the biophysical, economic and social environment.
Environmental Impact	The change to the environment resulting from an environmental aspect, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.
Environmental Impact Assessment (EIA)	The process of examining the environmental effects of a development in terms of the National Environmental Management Act (Act 107 of 1998) and the Environmental Impact Assessment (EIA) Regulations.
Environmental Management Programme (EMPr)	A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.
Environmental Objective	Overall environmental goal pertaining to the management of environmental features.
Environmental Target	Performance requirement that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
Floodplain	A flat expanse of land bordering a river channel, formed through sediment deposition and other alluvial processes, and often characterized by frequent flooding as a result of bank overspill from the river channel.

Groundwater	Sub-surface water in the zone in which permeable rocks, and often the overlying soil, are saturated.
Hazardous waste	Waste that are proven to be toxic, corrosive, explosive, flammable, carcinogenic, radioactive, poisonous or classified as such in legal terms.
Heritage Resource	Any place or object of cultural significance including buildings, structures, landscapes, graves and geological, archaeological and palaeontological sites.
Landscape	Land modified for human use and occupation, embracing both the natural (wilderness) environment and the urban.
Management Actions	Practical actions aimed at achieving management objectives and targets.
Management Objectives	Desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources).
Monitoring	A systematic and objective observation of an organization's activities and services conducted and reported on regularly.
Natural Vegetation	All existing vegetation species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.
Pollution	Any change in the environment caused by substances, radioactive or other waves, or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future. Furthermore, pollution can also be regarded as an undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities.
Protected Plants	Plant species officially listed on the Protected Plants List (each province has one), and which may not be removed or transported without a permit to do so from the relevant provincial authority.
Reinstatement	Reinstatement is defined as the return of a disturbed area to a state, which approximates the state (where possible), which it was before disruption.
Runoff	The total water yield from a catchment including surface and subsurface flow.
Riparian Habitat	The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Sensitive Environmental Features	Environmental features protected by legislation (e.g. heritage resources), or identified during the EIA as sensitive through specialists' findings and input received from Interested and Affected Parties.
Subsoil	The soil horizons between the topsoil horizon and the underlying parent rock.
Topsoil	Topsoil can be regarded as the fertile upper part or surface of the soil.
Transplanting	The removal of plant material and replanting the same plants in another designated position.
Wastewater	Means water contaminated by the project activities.
Watercourse	A geomorphological feature characterized by the presence of a streamflow channel, a floodplain and a transitional upland fringe seasonally or permanently conveying surface water.
Weeds and Invader Plants	Weeds and invader plants are defined as undesirable plant growth that shall include, but not be limited to all declared category 1, 2 and 3 listed invader species as set out in the Conservation of Agricultural Resources Act (No 43 of 1983) regulations. Other vegetation deemed to be invasive should be those plant species that show the potential to occupy in number, any area within the defined construction area.
Wetland	Land where a surplus of water (i.e. waterlogging) is the key factor determining the nature of the soil development as well as the types of plants and animals living at the soil surface.

1 DOCUMENT ROADMAP

This document serves as the Draft Environmental Management Programme (EMPr) for the pre-construction, construction and operational phases for the proposed upgrade of the existing ship repair facility at the port of Mossel Bay, Western Cape.

In order to provide clarity to the reader, a document roadmap is provided in **Table 1** below. The document roadmap provides information on the requirements of the 2014 Environmental Impact Assessment (EIA) Regulations, as amended (07 April 2017), as stipulated in Appendix 4 of Government Notice (GN) No. R. 982, as promulgated in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998) as well as a guide on the content of each chapter.

Table 1: Document Roadmap

Chapter	Title	Correlation with Appendix 4 of G.N. No. R982	
1	**Document Roadmap**	N/A	
2	**Purpose of the Document**	N/A	
3	**Project Overview**	N/A	
4	**Environmental Assessment Practitioners**	1(a)	Details of – (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including curriculum vitae.
5	**Legislation and Guidelines Considered**	N/A	
6	**Roles & Responsibilities**	1(i)	An indication of the persons who will be responsible for the implementation of the impact management actions.
7	**Monitoring**	1(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f).
		1(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f).
		1(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f).
		1(l)	A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations.

Chapter	Title	Correlation with Appendix 4 of G.N. No. R982	
8	**Environmental Training & Awareness Creation**	1(m)	An environmental awareness plan describing the manner in which - (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment.
9	**Environmental Activities, Aspects and Impacts**	1(b)	A detailed description of the aspects of the activity that are covered by the final environmental management plan.
10	**Sensitive Environmental Features**	1 (c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.
11	**Impact Management**	1(d)	A description of impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities.
		1(f)	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to - (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.
		1(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented.
		1(l)	A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations.

Chapter	Title	Correlation with Appendix 4 of G.N. No. R982	
N/A		1(n)	Any specific information that may be required by the competent authority
N/A		2	Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.

2 PURPOSE OF THIS DOCUMENT

The EMPr contains suitable mitigation measures to manage (i.e. prevent, reduce, rehabilitate and/or compensate) the environmental impacts of the project. The EMPr is to be implemented during various phases of the project. The EMPr will be continuously updated throughout the EIA phase.

An EMPr represents a detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the lifecycle of a project. The Department of Environmental Affairs (DEA) has requested that the EMPr must be clear on the commitments made on which mitigation measures will be implemented in a document that is to be enforced as part of a legal requirement during the lifespan of the proposed project.

The scope of the EMPr for the proposed upgrade of the existing ship repair facility at the port of Mossel Bay is as follows:

- Establish management objectives during the project lifecycle in order to enhance benefits and minimise adverse environmental impacts;
- Provide targets for management objectives, in terms of desired performance;
- Describe actions required to achieve management objectives;
- Outline institutional structures and roles required to implement the EMPr;
- Provide legislative framework; and
- Description of requirements for record keeping, reporting, review, auditing and updating of the EMPr.

The primary objectives of the EMPr are to:

- Provide mitigation measures to limit environmental impacts and improve management of activities thereby reducing the probability of impacts occurring; and
- Define organisational and administrative arrangements for environmental management and monitoring of the work contract, including defining the responsibilities of staff and co-ordination, liaison and reporting procedures.

3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Nemai Consulting was appointed by Transnet National Ports Authority (TNPA) as the Independent Environmental Assessment Practitioner (EAP) to undertake the BA Process for the proposed upgrade of the existing ship repair facility at the port of Mossel Bay, Western Cape. In accordance with Section 3(1)(a) of Appendix 1 of GN No. R. 982 of the 2014 EIA Regulations (as amended), this section provides an overview of Nemai Consulting and the company's experience with EIAs, as well as the details and experience of the EAPs that form part of the BA team.

Nemai Consulting is an independent, specialist environmental, social development and Occupational Health and Safety (OHS) consultancy, which was founded in December 1999. The company is directed by a team of experienced and capable environmental engineers, scientists, ecologists, sociologists, economists and analysts. The core members of Nemai Consulting that are involved in the BA Process for the proposed project are captured in **Table 2** below, and their respective Curricula Vitae are contained in **Appendix 1**.

Table 2: BA core team members

Name	Qualification	Responsibility
Mrs N. Naidoo	BSc Eng (Chem)	Project Manager and Environmental Engineering
Ms K. Robertson	MSc Environmental Sciences	Project Leader, EAP and Public Participation
Mr D. Henning	MSc Zoology	EAP
Mr C. Van Der Hoven	BSc (Honours) Environmental Sciences	Public Participation

4 PROJECT OVERVIEW

4.1 Background

The Port of Mossel Bay has an approximately 85 year old end haul type slipway currently installed, the purpose of which is to allow for the repair of ships/vessels. The existing ship repair facility at the Port of Mossel Bay (**Figure 1**) is located in the south east portion of the port and comprises of the following:

- Two wooden lead-in jetties;
- A wooden cradle to haul vessels out of the water;
- A concrete beam and pile, end haul type slipway with two side slip yards;
- Winch house; and
- Administration building, stores and workshops.

Figure 1: Aerial view of the ship repair facility

4.2 Project Motivation

The slipway was originally designed to service vessels having a maximum light displacement tonnage of 500 long tonnes (Tons) and for accommodating side slipping, where vessels were brought to land on the main cradle and then shifted of the main cradle to either side of it. Some of the side slipping infrastructure, like the upstand concrete beams, are still present at the site. Side slipping has however not been practiced at the slipway for the last 50 years at least. The Port of Mossel Bay intends to undertake side slipping activities in future.

Due to a lack of maintenance and an incident that occurred in 2005, the facility has become unsafe and the permissible maximum vessel light displacement has been reduced to 200 Tons. Prior to the facility being declared unsafe in November 2005, it serviced an average of 43 vessels a year (based on counts for three years preceding 2005). The lead-in jetties are also in a poor condition, with major deterioration of both the pile supports and superstructure. There is particular concern that any impact by vessels could result in a catastrophic structural failure of the jetties. There is also an operations building on the site that was constructed at the same time as the slipway. The building is old, of outdated construction and does not meet the Port's future operational requirements.

The primary drivers for the proposed development are based on:

- The National Government initiative called Operation Phakisa which is linked to the National Development Plan;
- The existing aged infrastructure that has become unsafe due to a lack of maintenance and is therefore operated below its design capacity; and

- The existing infrastructure that is not used to its full existing operational capacity (simultaneous dry-docking of two vessels).

The proposed development of the proposed ship repair facility at the Port of Mossel Bay is focused on achieving the strategic Operation Phakisa goals of efficiency and economic improvement by:

- Providing a technologically modern facility that can provide ship repair services both efficiently and safely. Phakisa Focus: Engineering/Infrastructure aspects, alignment with Ports Act and other statutory requirements and technical skills improvement;
- Increasing the volume of vessels handled per year and increasing the size of vessels that can be handled. Phakisa Focus: becoming “port of call” for ship repair on east coast of South Africa;
- Widening the ship repair and support services that can be offered by the Port. Phakisa Focus: Broadening Transnet’s internal skills base;
- Stimulate local and regional supply chain opportunities due to increased vessel handling. Phakisa Focus: Strategic Development Initiatives and empowerment programme; and
- Provide a mechanism for the expansion of employment and training opportunities in ship repair and heavy mechanical industry sectors. Phakisa Focus: training and development focusing on advanced technical skills levels.

Therefore, not only will the proposed upgrade fall under the Operation Phakisa Initiative, but it also introduces other features, like side slipping, which would serve the following purposes:

- Increase the facilities’ utilisation;
- Increase revenue generation for TNPA;
- Modernize the facility; and
- Increase the safety at the site.

4.3 Project Location

Mossel Bay is located in the Western Cape, approximately halfway between Cape Town and Port Elizabeth. The Port of Mossel Bay is situated by the coast, north-east of the town of Mossel Bay (**Figure 2**), falling within the Eden District Municipality and Mossel Bay Local Municipality.

Table 3 provides a description of the property details.

Figure 2: Google Earth locality map of the proposed site in relation to the Port of Mossel Bay

Table 3: Property details of the proposed site

Province	Western Cape Province
District Municipality	Eden District Municipality
Local Municipality	Mossel Bay Local Municipality
Ward Number(s)	Ward 8
Farm Name and Number	Erven 12459 of Mossel Bay
Portion Number	
SG Code	C05100070001245900000
Centre Coordinate of Site Boundary	34°10'49.01S; 22°08'52.87E

4.4 Project Description

The scope of work associated with the proposed project includes the following (**Figure 3**):

1. Demolish the existing wooden lead-in jetties;
2. Install Docking Arms;

3. Repair existing slipway and the surface of the sideslip will be expanded by approximately 300 square meters;
4. Replace existing wooden cradle with steel cradle;
5. Demolish and rebuild winch house and associated buildings;
6. Provide a stormwater management and recycling system;
7. Installation of a 1 MVA Substation; and
8. Upgrade services for electrical, sewer, water (salt and fresh), compressed air, lighting, sideslip yards, working area surfacing, bunding and construction/rehabilitation of substation building, administration building and carpenters and millwright building.

Figure 3: Scope of work

5 LEGISLATION AND GUIDELINES CONSIDERED

5.1 Overview of Legislation

Some of the pertinent environmental legislation that has bearing on the proposed development is captured in **Table 4** below. A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.

Table 4: Environmental legislative framework

Legislation	Relevance
Constitution of the Republic of South Africa (Act No. 108 of 1996)	Chapter 2 – Bill of Rights. Section 24 – environmental rights.
National Environmental Management Act (Act No. 107 of 1998)	Section 24 – EA (control of activities which may have a detrimental effect on the environment). Section 28 – Duty of care and remediation of environmental damage. Environmental management principles. **Authority – DEA.**
GN No. R. 982 of 04 December 2014 EIA Regulations	Process for undertaking Basic Assessment / Scoping and EIA Process.
GNs No. R. 983 and 984 of 04 December 2014 EIA Regulations	Activities that need to be assessed through a Basic Assessment Process.
GN No. R. 985 of 04 December 2014 EIA Regulations	Activities that need to be assessed through a Scoping and EIA Process.
National Water Act (Act No. 36 of 1998)	Chapter 3 – Protection of water resources. Section 19 – Prevention and remedying effects of pollution. Section 20 – Control of emergency incidents. Chapter 4 – Water use. **Authority – DWS.**
National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)	Process for a Coastal Waters Discharge Permit (CWDP). Process for a Dumping at Sea Permit (DSP) **Authority – DEA.**
South African Maritime Safety Authority (SAMSA) (1998)	To provide for the establishment and functions of the South African Maritime Safety Authority; and to provide for incidental matters.
National Environmental Management: Protected Areas Act (Act No. 57 of 2003)	Protection and conservation of ecologically viable areas representative of South Africa's biological diversity and natural landscapes. **Authority – DEA.**
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Management and conservation of the country's biodiversity. Protection of species and ecosystems. **Authority – DEA.**
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	Air quality management. Section 29 – pollution prevention plans (Notice 172 of 2014: Greenhouse gases as priority air pollutants) Section 32 – dust control. Section 34 – noise control. Section 35 – control of offensive odours. **Authority – DEA.**
National Environmental Management: Waste Act (Act No. 59 of 2008)	Chapter 4 – Waste management measures Chapter 5 – licensing requirements for listed waste activities. **Authority – DEA.**
Hazardous Substances Act (Act No. 05 of 1973)	Provisions for the control of substances which may cause injury or ill-health to or death of human beings. **Authority – DEA.**

Legislation	Relevance
Occupational Health & Safety Act (Act No. 85 of 1993)	Provisions for Occupational Health & Safety. Major Hazardous Installation Regulations. **Authority – Department of Labour.**
National Heritage Resources Act (Act No. 25 of 1999)	Section 34 – protection of structure older than 60 years. Section 35 – protection of heritage resources. Section 36 – protection of graves and burial grounds. Section 38 – Heritage Impact Assessment for linear development exceeding 300m in length; development exceeding 5 000m2 in extent. **Authority – Heritage Western Cape and the South African Heritage Resources Agency (SAHRA).**
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Control measures for erosion. Control measures for alien and invasive plant species. **Authority – Department of Agriculture, Forestry and Fisheries (DAFF).**
National Forestry Act (Act No. 84 of 1998)	Section 15 – authorisation required for impacts to protected trees. **Authority – DAFF.**
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	Permit required for borrow pits. **Authority – Department of Mineral Resources.**

5.2 National Environmental Management Act (Act No. 107 of 1998)

The proposed upgrade of the ship repair facility at the Mossel Bay Port requires authorisation in terms of NEMA, and the BA will be undertaken in accordance with the 2014 EIA Regulations, as amended (07 April 2017).

Important aspects of NEMA are sustainability principles such as the “Polluter Pays” and the “Precautionary Principle” which will also be taken into account in the assessment of the impacts of the proposed development.

5.2.1 2014 EIA Regulations, as amended (07 April 2017)

The EIA Regulations consist of the following:

- EIA Procedures - GN No. R. 982;
- Listing Notice 1 - GN No. R. 983;
- Listing Notice 2 - GN No. R. 984; and
- Listing Notice 3 - GN No. R. 985.

The proposed upgrade of the ship repair facility at the Mossel Bay Port triggered activities under Listing Notices 1 and 3, and thus needs to be subjected to a BA Process. The Listed Activities are explained in the context of the project in **Table 5**.

Table 5: Listed activities triggered by the proposed project

GN No. R.	Activity	Description as per GN	Applicability to the Project
GN R. 983 of 04 December 2014 (as amended)	19A(iii)	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from— (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or **(iii) the sea; —** but excluding where such infilling, depositing , dredging, excavation, removal or moving— (f) will occur behind a development setback; (g) is for maintenance purposes undertaken in accordance with a maintenance management plan; (h) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The project involves: ➢ Demolishing the existing wooden lead-in jetties; ➢ Installing Docking Arms; ➢ Repairing existing slipway (the underwater portion of the rail support beams for the cradle will be rebuilt, above water portions will be repaired); ➢ The surface of the sideslip will be expanded by approximately 300 square meters; and ➢ Replacing the existing wooden cradle with a steel cradle. The above components will involve dredging, excavation, removal and moving soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres in total.
GN R. 983 of 04 December 2014 (as amended)	31(i and ii)	The decommissioning of existing facilities, structures or infrastructure for—	The existing lead-in jetties will be demolished.

GN No. R.	Activity	Description as per GN	Applicability to the Project
		(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; **(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;** (iii) … (iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or (v) any activity regardless the time the activity was commenced with, where such activity: (a) is similarly listed to an activity in (i) or (ii) above; and (b) is still in operation or development is still in progress; excluding where— (aa) activity 22 of this notice applies; or (bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.	
GN R. 983 of 04 December 2014 (as amended)	52	The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there will be no increase in the development footprint of the port or harbour and excluding activities listed in activity 23 in Listing Notice 3 of 2014, in which case that activity applies.	The proposed development footprint is at least 13 000m^2 within the coastal public property.

GN No. R.	Activity	Description as per GN	Applicability to the Project
GN R. 983 of 04 December 2014 (as amended)	55(i)(a)	Expansion- **(i) in the sea;** (ii) in an estuary; (iii) within the littoral active zone; (iv) in front of a development setback; or (v) if no development setback exists, within a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever is the greater; in respect of- **(a) facilities associated with the arrival and departure of vessels and the handling of cargo;** (b) piers; (c) inter- and sub-tidal structures for entrapment of sand; (d) breakwater structures; (e) coastal marinas; (f) coastal harbours or ports; (g) tunnels; or (h) underwater channels; but excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.	The project requires the following: • Installation of docking arms to be mounted onto the new steel cradle. The side slip cradles will be fitted with 8off, vertically mounted frame structures called docking arms; • Repairing the existing slipway (the underwater portion of the rail support beams for the cradle will be rebuilt, above water portions will be repaired); • The surface of the sideslip will be expanded by approximately 300 square meters; and • Replacing existing wooden cradle with steel cradle.
GN R. 985 of 04 December 2014 (as amended)	10(i)(iii)(aa)	The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in	A stormwater management and recycling system will be required. Water containing grit and paint flakes will enter this system. The design load of the

GN No. R.	Activity	Description as per GN	Applicability to the Project
		containers with a combined capacity of 30 but not exceeding 80 cubic metres. **(i) In Western Cape:** i. Areas zoned for use as public open space or equivalent zoning; ii. All areas outside urban areas; or **iii. Inside urban areas:** **(aa) Areas seawards of the development setback line or within 200 metres from the high-water mark of the sea if no such development setback line is determined;** (bb) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; or (cc) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.	system is estimated at 60m3. Due to the slipway site layout and also accommodating for future side slipping activities, two identical systems, each having a 30m3 settling tank capacity, will be required on either side of the slipway main cradle. The proposed facility occurs within the urban edge and within 200m of the high-water mark of the sea.

6 ROLES AND RESPONSIBILITIES

6.1 Department of Environmental Affairs (DEA)

DEA are the mandated authority in terms of NEMA that determine whether authorisation can be issued for the project, following a decision-making process.

DEA also fulfils a compliance and enforcement role with regards to the authorisation. The Department may perform random inspections to checks compliance. DEA will review the monitoring and auditing reports compiled by the Environmental Control Officer (ECO).

6.2 TNPA

TNPA is the applicant in terms of NEMA. TNPA is also the Project Proponent for all components of the work related to the development and is ultimately responsible for the development and implementation of the EMPr and ensuring that the conditions in the Environmental Authorisation (EA) are satisfied. The liability associated with environmental non-compliance rests with the Project Proponent. Within TNPA, there are a number of environmental functions. These include:

6.2.1 TNPA Environmental Manager

The TNPA Environmental Manager will be responsible for ensuring that the EMPr and associated documents or requirements are complied with during construction. Specific tasks include:

- Liaison with authorities;
- Preparation of project specific Project Environmental Standards;
- Tender evaluation, development of environmental criteria and adjudication thereof;
- Induction of Contractor and project employees;
- Review of all reports from the ECO, including signing off on Method Statements;
- Conduct all environmental incident enquiries;
- Ensure induction material includes project appropriate environmental issues;
- Approve training programmes and other initiatives; and
- Coordinate or facilitate internal environmental audits.

6.2.2 TNPA Project Manager

The TNPA Construction Manager has overall responsibility for environmental management on site which includes the implementation of the EMPr, Environmental Specifications, and permits. The Project Manager is supported by the TNPA Environmental Manager. Specific Tasks include:

- Reviewing the monthly reports compiled by the Environmental Control Officer (ECO);

- Identifying the need for remedial measures with regards to the proposed work;
- Communicating directly to the contractors;
- Issuing non-conformance notification to Contractors that do not comply with the requirements of the EMPr and other documents.
- Overseeing of all environmental matters and compliance with all environmental requirements and authorisations; and
- Act as the interface between the ECO and the other project role players.

6.3 Environmental Control Officer (ECO)

It is recommended that the ECO undertake monthly inspections of the site and at least 6 monthly, full compliance auditing against the EMPr and EA. The Audit reports will also be made available to the relevant authorities, on their request. Further duties of the ECO will be the following:

- Monitoring of compliance with the EMPr and the Project Specification;
- 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 and inspections and audits of all work places;
- Monitor the Contractor's compliance with the EA, EMPr and any permits on site;
- Conduct monthly observations and environmental audits of all Contractors and Work areas; and
- Ensure that all environmental monitoring programmes are carried out according to protocols and standards.
- Make recommendations on how to best apply the environmental requirements on site and advise the TNPA Project Manager on the site instructions required to facilitate effective environmental compliance; and
- Participate in the quality management system by issuing non-conformances when there are areas of the project environmental requirements that are not being met.

6.4 Contractor's Environmental Officer (EO)

The primary role of the competent EO is to implement the EMPr and EA during the construction phase.

Specific responsibilities of the EO will be fulltime on site, will include the following:

- Aiding the Contractor to comply with all the project's environmental management requirements;
- Assisting the Contractor in compiling Method Statements;

- Facilitating environmental activities and environmental awareness training of relevant persons on site;
- Exercise an internal compliance management system on behalf of the Contractor;
- Inspect the site as required to ensure adherence to the management actions of the Pre-construction and Construction EMPr and the Method Statements;
- Provide inputs to the regular environment report to be prepared by the ECO (as required);
- Liaise with the construction team on issues related to implementation of, and compliance with, the Pre-construction and Construction EMPr;
- Maintain a record of environmental incidents (such as spills, impacts, legal transgressions) as well as corrective and preventive actions taken; and
- Maintain a public complaint register in which all complaints are recorded, as well as action taken.

7 MONITORING

Monitoring is required to ensure that the receiving environment at the study area is suitably safeguarded against the identified potential impacts, and to ensure that the environmental management requirements are adequately implemented and adhered to during the execution of the project.

7.1 Compliance Monitoring

Compliance monitoring will commence in the pre-construction phase, where those conditions in the EA that need to be adhered to prior to project implementation will need to be checked and recorded. Compliance monitoring will be completed at the end of the defects liability period to check the performance of rehabilitation measures and whether the related objectives have been met.

The ECO will undertake weekly monitoring against the requirements stipulated in the EMPr and EA.

Compliance monitoring with the EA and EMPr must be conducted in accordance with Regulation 34 of GN No. R 982 (07 April 2017) in terms of the following:

1. The holder of an EA must, for the period during which the EA and EMPr, remain valid -
    a. Ensure that the compliance with the conditions of the EA and EMPr is monitored; and
    b. Submit environmental monitoring reports to DEA.
2. The environmental monitoring report must-
    a. Be prepared by an independent person with the relevant environmental monitoring expertise;

b. Provide verifiable findings, in a structured and systematic manner, on-
   i. The level of performance against and compliance of an organization or project with the provisions of the requisite EA or EMPr; and
   ii. The ability of the measures contained in the EMPr, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;
c. Contain the information set out in Appendix 7 of GN No. R 982 (07 April 2017); and
d. Be conducted and submitted to DEA at intervals as indicated in the EA.

A document handling system must be established to ensure accurate updating of EMPr documents, and availability of all documents required for the effective functioning of the EMPr. Supplementary EMPr documentation could include:

- Method Statements;
- Site instructions;
- Emergency preparedness and response procedures;
- Record of environmental incidents;
- Non-conformance register;
- Training records;
- Site inspection reports;
- Monitoring reports;
- Auditing reports; and
- Public complaints register (single register for maintained for overall site).

The Contractor shall also develop and submit a Site Layout Plan illustrating the planned site layout, access routes, storage facilities, site camp area, parking areas, etc. This Site Layout Plan must first be approved by the Applicant and ECO prior to site establishment activities commencing.

7.2 Water Quality Monitoring

TNPA will continue to monitor the existing Long-Term Ecological Monitoring Programme for the Port of Mossel Bay that is being undertaken by the CSIR.

8 Environmental Training and Awareness Creation

Training aims to create an understanding of environmental management obligations and prescriptive measures governing the execution of the project. It is generally geared towards project team members that require a higher-level of appreciation of the environmental management context and implementation framework for the project.

Awareness creation strives to foster a general attentiveness amongst the construction workforce to sensitive environmental features and an understanding of implementing environmental best practices. The various means of creating environmental awareness during the construction phase of the project may include:

- Induction course for all workers before commencing work on site;
- Refresher courses (as and when required);
- Toolbox talks, focusing on particular environmental issues (task- and area specific);
- Courses must be provided by suitably qualified persons and in a language and medium understood by the workers;
- Erect signage and barricading (where necessary) at appropriate points in the construction domain, highlighting sensitive environmental features (e.g. grave sites, protected trees); and
- Place posters containing environmental information at areas frequented by the construction workers (e.g. eating facilities).

Training and awareness creation will be tailored to the audience, based on their designated roles and responsibilities. Records will be kept of the type of training and awareness creation provided, as well as containing the details of the attendees.

9 ENVIRONMENTAL ACTIVITIES, ASPECTS AND IMPACTS

In order to establish best management practices and prescribe mitigation measures, the following project-related information needs to be adequately understood:

- Activities associated with the proposed project;
- Environmental aspects associated with the project activities;
- Environmental impacts resulting from the environmental aspects; and
- The nature of the surrounding receiving environment.

9.1 Environmental Activities

For the purposes of effective and efficient monitoring, the aspects of construction are outlined separately for pre-construction and construction phases. In order to understand the impacts related to the project it is necessary to unpack the activities associated with the project life-cycle, as shown below:

Table 6: Activities associated with Pre-construction Phase

PRE-CONSTRUCTION PHASE

Project Activities
1. Applicant to appoint ECO
2. Negotiations and agreements with affected landowners and stakeholders
3. Detailed engineering design
4. Detailed geotechnical design
5. Site survey
6. Procurement of contractors
7. Mark construction footprint
8. Pre-construction photographic records
9. Development and approval of method statements
10. Development and approval of construction plans
11. Development of employment strategy
12. Construction site planning, access and layout
Environmental Activities
1. Diligent compliance monitoring of the EA, EMPr and other relevant environmental legislation
2. Obtain permits from SAHRA and/or Heritage Western Cape
3. Ongoing consultation with affected landowners and affected parties

Table 7: Activities associated with Construction Phase

CONSTRUCTION PHASE
Project Activities
1. Site establishment
2. Fencing of the construction area
3. Delivery of construction material
4. Transportation of equipment, materials and personnel
5. Storage and handling of material
6. Water quality monitoring

7.	Cut and cover activities
8.	Stockpiling (sand, crushed stone, aggregate, etc.)
9.	Stormwater control mechanisms
10.	Management of topsoil and spoil
11.	Waste and wastewater management
12.	Traffic control measures
13.	Site security
14.	Electrical supply
15.	Construction (including demolition of the jetties, installing the docking arms, repairing the slipway, replacing the cradle, demolishing and rebuilding the winch house and associated buildings, installing the stormwater management and recycling system, and building the substation)
Environmental Activities	
1.	Reinstatement and rehabilitation of construction domain
2.	Diligent compliance monitoring of the EA, EMPr and other relevant environmental legislation
3.	Conduct environmental awareness training
4.	Implement EMPr
5.	Ongoing consultation with affected landowners and affected parties

Table 8: Activities associated with Operation Phase

OPERATIONAL PHASE	
Project Activities	
1.	Site access arrangements and requirements
2.	Water quality monitoring
3.	Operation of the ship repair facility
4.	Repair and maintenance works of the ship repair facility at the Mossel Bay Port
Environmental Activities	
1.	Ongoing consultation with affected landowners and affected parties

2. Stormwater management
3. Pollution control measures

9.2 Environmental Aspects

Environmental aspects are regarded as those components of an organisation's activities, products and services that are likely to interact with the environment and cause an impact. The following environmental aspects have been identified for the proposed project, which are linked to the project activities (note that only high level aspects are provided):

Table 9: Environmental aspects associated with the Pre-construction Phase

ENVIRONMENTAL ASPECTS
Pre-construction Phase
1. Insufficient construction site planning and layout
2. Poor consultation with affected landowners, affected parties, stakeholders and authorities
3. Site-specific environmental issues not fully understood
4. Inadequate environmental and compliance monitoring
5. Absence of relevant permits
6. Poor waste management
7. Absence of ablution facilities

Table 10: Environmental aspects associated with the Construction Phase

ENVIRONMENTAL ASPECTS
Construction Phase
1. Poor consultation with affected landowners and affected parties
2. Inadequate environmental and compliance monitoring
3. Lack of environmental awareness creation
4. Indiscriminate site clearing
5. Poor site establishment
6. Poor traffic management
7. Disturbance of topsoil
8. Disruptions to existing services
9. Inadequate storage and handling of material

ENVIRONMENTAL ASPECTS
Construction Phase
10. Inadequate storage and handling of hazardous material
11. Poor maintenance of equipment and plant
12. Poor management of labour force
13. Pollution from ablution facilities
14. Inadequate management of construction camp
15. Poor waste management practices – hazardous and general solid, liquid
16. Poor management of pollution generation potential
17. Poor management of water
18. Loss of marine habitat and biodiversity
19. Disruption of archaeological and culturally significant features
20. Dust and emissions
21. Noise nuisance due to construction activities
22. Poor reinstatement and rehabilitation

Table 11: Environmental aspects associated with the Operational Phase

Operational Phase
1. Poor consultation with affected landowners, affected parties, stakeholders and authorities
2. Poor stormwater management
3. Inadequate environmental and compliance monitoring
4. Inadequate water quality monitoring
5. Inadequate management of access, maintenance and operation

9.3 Potential Significant Environmental Impacts

Environmental impacts are the change to the environment resulting from an environmental aspect, whether desirable or undesirable. Refer to **Tables 12** and **13** for the potential significant impacts associated with the preceding activities and environmental aspects for the construction and operation phase.

Table 12: Potential significant environmental impacts during Construction Phase

Feature	Impact
Geology and Soil	• Unsuitable geological conditions • Soil erosion (land clearance and construction activities) • Soil pollution (e.g. hydrocarbon and cement spillages) • Soil contamination through spillages and leakages • Poor stormwater management during construction
Marine Environment	• Loss of benthic habitat due to removal of existing structures and expansion of sideslip platform • Impacts on water quality • Re-suspension of contaminated sediments during construction • Pollution and waste • Construction noise and vibration
Socio – Economic Environment	• Generation of employment opportunities for local community (positive) • Nuisance from noise and dust • Construction related safety risks
Air Quality	• Excessive dust levels • Greenhouse gas emissions
Noise	• Localised noise increase • Noise nuisance
Heritage Resources	• Destruction of buried pre-colonial archaeological sites and/or materials • Destruction of buildings and structures most of which are more than 60 years of age and thus protected by the NHRA • Impact on evolving cultural landscape of the Port of Mossel Bay
Transportation	• Construction-related traffic
Aesthetics	• Construction related impacts on visual quality of port
Existing Infrastructure	• Repairing of existing infrastructure • Relocation of structures

Table 13: Potential Significant Environmental Impacts during Operation Phase

Feature	Impact
Marine Environment	• Habitat health impacts/losses resulting from new ship repair facility • Impacts on water quality • Re-suspension of contaminated sediments during dredging • Pollution and waste
Socio – Economic	• Generation of employment opportunities for local community (positive) • Contribution to local economy (positive) • Improved safety of the ship repair facility for utilisation by vessels • Providing a technologically modern facility that can provide ship repair services both efficiently and safely. Phakisa Focus: Engineering/Infrastructure aspects, alignment with Ports Act and other statutory requirements and technical skills improvement • Increasing the volume of vessels handled per year and increasing the size of vessels that can be handled. Phakisa Focus: becoming “port of call” for ship repair on east coast of South Africa

Feature	Impact
	• Widening the ship repair and support services that can be offered by the Port. Phakisa Focus: Broadening Transnet's internal skills base • Stimulate local and regional supply chain opportunities due to increased vessel handling. Phakisa Focus: Strategic Development Initiatives and empowerment programme • Provide a mechanism for the expansion of employment and training opportunities in ship repair and heavy mechanical industry sectors. Phakisa Focus: training and development focusing on advanced technical skills levels • Increase the facilities' utilisation • Increase revenue generation for TNPA
Noise	• Localised noise increase now that the facility will be running again
Heritage Resources	• Loss of archaeological sites, protected built environment and impact on evolving cultural landscape of the Port of Mossel Bay
Transportation	• Increase in traffic of vessels using the facility
Aesthetics	• Improved visual quality of port during operation due to the upgrade and modernisation of the facility

10 SENSITIVE ENVIRONMENTAL FEATURES

Analyses of the nature and profile of the receiving environment identified the potential sensitive environmental features. Cognisance must be taken of the following sensitive environmental features that should be afforded additional care and protection, for which mitigation measures are included in the Basic Assessment Report (BAR) and EMPr:

- The existing structures and infrastructure in the Mossel Bay Port;
- Benthic habitat and marine biota;
- Historical built environment (slipway, lead-in jetties, cradle, sideslip areas, winch house and machinery, administration buildings, infill building, shed and sea wall); and
- Cultural landscape: the ship repair facility can be described as being part of the continuing landscape which is the Port of Mossel Bay itself.

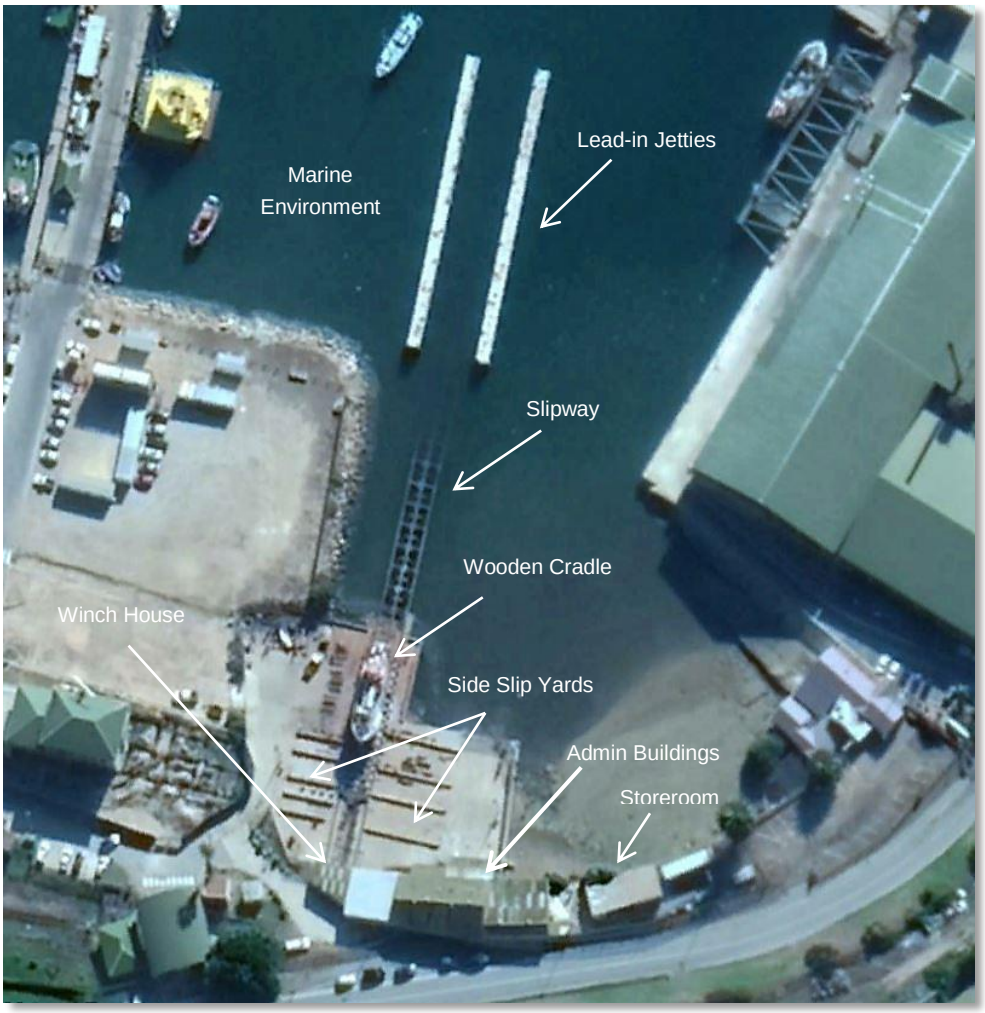

Figure 4: Historical built environment and marine environment

11 IMPACT MANAGEMENT

The impact assessment carried out for each environmental impact that may result from the proposed project, forms the basis for determining which management measures are required to prevent or minimise these impacts. The management measures are furthermore a means by which the mitigation measures, determined in the impact assessment are translated to action items required to prevent or keep those impacts that cannot be prevented within acceptable levels.

Mitigation should strive to abide by the following hierarchy (1) prevent; (2) reduce; (3) rehabilitate; and/or (4) compensate for the environmental impacts.

Figure 5: Mitigation hierarchy

The basis for the management measures which follow below comprise of the following:

- **Management objectives** – i.e. desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources);
- **Targets –** i.e. level of performance to accomplish management objectives; and
- **Management actions–** i.e. practical actions aimed at achieving management objectives and targets;
- **Responsibilities**; and
- **Monitoring requirements**.

11.1 Environmental Principles

The following principles must be considered at all times during the construction and operational phase activities.

The environment is considered to be composed of both biophysical and social components.

- Construction is a disruptive activity and all due consideration must be given to the environment, including the social environment, during the execution of a project to minimise the impact on affected parties;
- Minimisation of areas disturbed by construction activities (i.e. the footprint of the construction area) must minimise many of the construction related environmental impacts of the project and reduce rehabilitation requirements and costs;
- As minimum requirements, all relevant standards relating to international, national, provincial and local legislation, as applicable, shall be adhered to. This includes requirements relating to waste emissions (e.g. hazardous, airborne, liquid and solid), waste disposal practices, noise regulations, road traffic ordinances, etc; and
- Every effort must be made to minimise, reclaim and/or recycle “waste” material.

11.2 Pre-construction Phase

The planning or pre-construction phase largely entailed conducting the necessary specialist studies, determining the site layout and carrying out the requisite environmental processes to obtain authorisation.

General requirements during the pre-construction phase include the following:

- Design to consider and incorporate environmental requirements.
- Define and communicate roles and responsibilities for the implementation of the EMPr.
- Develop and implement an environmental awareness programme.
- Compile and implement an employment strategy for construction labour.

11.2.1 Environmental Investigations

Management Objective:

- Identify sensitive features in addition to those that have been identified as part of the Basic Assessment Process.

Target:

- Obtain permits for heritage buildings to be demolished/disturbed.

Management Actions:

- Design of proposed new administration buildings should respond to and reflect the heritage indicators of the buildings to be demolished – for example, height, massing and industrial nature.
- Although the historical seawall will not be affected by the proposed upgrade, care must be taken in both the design and construction of the new administration building and in work related to other elements of the upgrade that the wall is not compromised or damaged in any way.
- All built structures older than 60 years of age are protected by the NHRA and thus a permit to demolish and rebuild the submerged portion of the slipway will be needed from SAHRA. It is recommended that the required application for permission to repair and upgrade the slipway and side-slip areas above the waterline is also made to SAHRA. This will ensure that the works related to the marine aspects of the upgrade are dealt with by a single heritage agency. An application will need to be made to Heritage Western Cape (HWC) for the demolition of the administration buildings.
- Existing ship cradle and winch machinery recorded and then displayed on site or offered to a suitable local museum after removal.

Responsibilities:

- Applicant to appoint a suitably qualified heritage specialist to execute the management actions.

Monitoring Requirements:

- Approval by relevant environmental authorities (especially SAHRA and HWC).
- TNPA Project Manager and ECO – to monitor compliance.

11.2.2 Construction Site Planning and Layout

Management Objective:

- Appropriate planning and layout of construction site to ensure environmental protection.

Target:

- No impacts to sensitive environmental features as a result of construction site planning and layout.

Management Actions:

- Before construction commences, all sensitive features must be clearly demarcated.
- Rehabilitate all disturbed areas as soon as the construction is completed within the proposed development area.
- Ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm and this can be achieved through provision of appropriate awareness to all personnel.
- Records of all environmental incidents must be maintained and a copy of these records must be made available to authorities on request throughout the project execution.
- During site preparation, special care must be taken during the clearing of the works area to minimise damage or disturbance of roosting and nesting sites.
- No access to no-go areas without the permission of the Applicant.
- The Contractor to develop method statements to be approved by the Applicant prior to construction taking place. The plan must show the following (as relevant), as a minimum:
    - Buildings and structures;
    - Contractors' camp and lay down areas;
    - Site offices;
    - Roads and access routes;
    - Gates and fences;
    - Essential services (permanent and temporary water, electricity and sewage);
    - Rubble and waste rock storage and disposal sites;
    - Solid waste storage and disposal sites;
    - Site toilets and ablutions;
    - Topsoil stockpiles;

  - Construction materials stores;
  - Vehicle and equipment stores;
  - Sensitive environmental features; and
  - Any other activities, facilities and structures deemed relevant.
- Define and communicate roles and responsibilities for the implementation of the EMPr.
- Develop and implement an environmental awareness plan.
- The appointment of an ECO.
- Records of compliance / non-compliance must be kept on site at all times for DEA on request.
- Records of all environmental incidents must be maintained and a copy of these records be made available to DEA on request throughout the project execution.
- Project Management shall allocate a laydown area for Contractor-supplied items. At all times, the Contractor shall be responsible for the safe and adequate storage of all materials and equipment on site which he is to install, whether they are supplied by himself or others. The safe handling, unloading and loading of material receipts and dispatches at site or storage areas shall be the Contractors' responsibility.

Responsibilities:

- Applicant - acquire permits.
- TNPA Project Manager and ECO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Approved site plan.
- Barricading and signage.
- Records of awareness creation.
- Plant rescue, relocation and protection.

11.2.3 Environmental Awareness Creation

Management Objective:

- Ensure that the Contractor, construction workers and site personnel are aware of the relevant provisions of the EMPr, EA and other relevant permits.

Target:

- All construction workers and employees to have completed appropriate environmental training.
- A record of environmental training undertaken to be kept on site.

Management Actions:

- The Contractor must arrange that all of his employees and those of his sub-contractor go through the project specific environmental awareness training courses before the commencement of construction and as and when new staff or sub-contractors are brought on site.
- The contractor's site staff including foremen and site management staff shall attend an environmental awareness training course on the conditions of the EMPr provided by the ECO and a signed attendance register shall be kept available for confirmation. This will be a once of training session.
- Environmental training provided by the Contractor is compulsory for all employees and structured in accordance with their relevant rank, level and responsibility, as well as the Environmental Specification as they apply to the works and site.

Responsibilities:

- TNPA Project Manager and ECO – to monitor compliance.
- ECO to conduct once-off EMPr training with Contractor's Supervisory Staff.
- TNPA EO to provide material for training to Contractor.
- Contractor to conduct Environmental induction training with all its staff.

Monitoring Requirements:

- Records of environmental training and awareness.

11.2.1 Ongoing Consultation with Affected Parties

Management Objective:

- Establish and maintain a record of all complaints and claims against the project and ensure that these are timeously and effectively verified and responded to.
- Adhere to agreements made with affected landowners regarding communication.

Target:

- All complaints and claims are to be acknowledged within five (5) working days and are to be responded to within 10 working days of receipt, unless additional information and/or clarification are required.
- No deviations from agreements made with adjacent landowners and community members.

Management Actions:

- Establish lines of communications with landowners, affected parties, and the surrounding community.
- Establish processes and procedures to effectively verify and address complaints and claims received.
- Complaints or liaison with landowners, affected parties, and the surrounding community with regard to environmental aspects, compensation or disturbance to activities or animals,

must be recorded, reported to the correct person and a record of the response is to be entered in the complaints register.

- Provide the relevant contact details to affected parties, adjacent landowners, and community members for queries/raising of issues or complaints.
- Continued liaison with authorities with regards to compliance with the EA.
- Access points to construction site, especially in areas where landowners will be affected must be communicated with the affected landowners and an agreement must be reached with them in terms of access roads.
- Liaison with land owners/tenants is to be done prior to construction in order to provide sufficient time for them to plan agricultural activities. If possible, construction must be scheduled to take place within the post-harvest, pre-planting season when fields are lying fallow.
- All contractors' staff must be easily identifiable through their respective uniforms.
- A security policy must be developed which amongst others requires that permission be obtained prior to entering any property and provisions controlling trespassing by contractor staff.
- Security staff must only be allowed to reside at contractor camps and no other employees.
- Contractors must establish crime awareness programmes at their site camps.

Responsibilities:

- TNPA Project Manager and ECO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.

11.3 Construction Phase

11.3.1 Site Establishment

Management Objective:

- Minimise environmental impacts associated with site establishment.

Target:

- No damage to the environment outside construction area during site establishment.
- No access or encroachment into no-go areas.
- No justifiable complaints regarding general disturbance and nuisance received from the affected parties and community members.

Management Actions:

- The Contractor is to produce a site plan for the approval by the applicant prior to the establishment of the site, which aims to identify construction activities, facilities and structures in relation to sensitive environmental features. This plan will serve as a spatial tool that facilitates the execution of the construction phase with due consideration of sensitive environmental features.
- Locate construction camps outside of sensitive environmental features.
- Facilities and structures shall be located with due cognisance of the terrain and geographical features of the project site.
- Positioning of the storage and laydown areas must aim to minimise visual impacts.
- Control the movement of all vehicles and plant (including suppliers), such that they remain on designated routes and comply with relevant agreements.
- Maintain barricading around sensitive features until the cessation of construction works.
- Ensure noise levels are within their lawfully acceptable limits as per SANS 10103.
- Minimise disturbance from lighting of the construction camp and site.
- The Contractor shall ensure that the Contractors camp and working areas are kept clean and tidy at all times.
- The Contractor shall comply with all safety requirements enforced; these include emergency evacuation procedures, fire preventative measures, etc.
- The Contractor shall supply firefighting equipment in proportion to the fire risk presented by the type of construction and other on-site activities and materials used on site. This equipment shall be kept in good operating order. This particularly applies to welding activities, etc.
- The contractor is to provide designated safe smoking areas.
- Every precaution must be taken, to prevent pollution of air, soil, ground and surface water as a result of construction or associated activities at the construction site.
- Fuel, lubricants, transmission and hydraulic fluids shall only be stored in the designated areas that comply with the OHS Act.
- A copy of the EA must be kept at the property where the activity will be undertaken. The EA must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Proof of approval of site camp by TNPA Construction Manager and TNPA EO.
- Contractor's method statement.
- Public complaints register.

- Site plan.

11.3.2 Management of Existing Services and Infrastructure

Management Objective:

- Prevent impacts to existing services and infrastructure.
- Adhere to agreements made with owners / custodians of the services and infrastructure.

Management Target:

- No unwarranted complaints regarding adverse impacts to existing services and infrastructure.
- No adverse impacts to existing services and infrastructure.
- All relevant approvals (way leaves) to be obtained prior to working within existing servitudes (including roads, railway line, gas and water pipelines, powerlines, telephone lines, etc.).

Management Actions:

- Identify and record all existing services and infrastructure.
- If a risk existing of damage taking place on a property as a result of construction, a condition survey must be undertaken prior to construction. The contractor is to make good and acknowledge any damage that occurs on any property as a result of construction work.
- Conform to requirements of relevant service providers. Agreements to be in place.
- Ensure access to infrastructure is available to service providers and users at all times.
- Immediately notify service providers of disturbance to services. Rectify disturbance to services, in consultation with service providers. Maintain a record of all disturbances and remedial actions on site.
- Notify adjacent landowners of any disruptions to essential services and infrastructure.
- Adequate reinstatement and rehabilitation of environment affected as a result of the project.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Contractor's method statement.

11.3.3 Management of Construction Camp and Eating Areas

Management Objective:

- Minimise environmental impacts associated with the construction camp and eating areas.

Target:

- No environmental contamination associated with the construction camp.
- Minimise visual impact associated with the construction camp.
- No complaints regarding the construction camp.

Management Actions:

- Construction camp to be screened to minimise the visual impact, where practicable.
- The Contractor shall provide eating areas for all staff. Eating areas be cleaned on a daily basis and shall provide adequate temporary shade.
- Open uncontrolled fires will be forbidden at the site camp. Rather, 'contained' cooking mechanisms will be used (e.g. gas stoves or an enclosed braai facility).
- Eating areas will be designated and demarcated.
- Refuse bins must be placed at all eating areas.
- The feeding, or leaving of food for animals, is strictly prohibited.
- Sufficient vermin / weatherproof bins will be present in this area for all waste material.
- Dishwashing facilities will be provided to ensure that wastewater is disposed of appropriately.
- Failure to comply with the general code of conduct, or the rules and procedures implemented at the construction camp will result in disciplinary actions.
- Provide safe potable water for food preparation, drinking and bathing.
- Prohibit the felling of trees for firewood.
- Provide medical and first aid facilities at the camp area.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Waste disposal certificates.

11.3.4 Management of Ablution Facilities

Management Objective:

- Minimise environmental impacts associated with ablution facilities.

Target:

- No environmental contamination associated with ablution facilities.
- Minimise visual impact associated with ablution facilities.

Management Actions:

- Provide sufficient ablution facilities (e.g. mobile / portable / VIP toilets) at the construction camp, which conform to all relevant health and safety standards and codes.
- No pit latrines, trench drain systems or soak away systems shall be allowed. The location of conservancy tanks is to be approved by the Applicant.
- A sufficient number of toilets shall be provided to accommodate the number of personnel working in any given area. Toilets may not be further than 100 m from any working area. Toilet facilities supplied by the Contractor for the workers shall occur at a maximum ratio of 1 toilet per 15 workers.
- All staff to use the provided toilets at all times.
- All temporary / portable / mobile toilets shall be secured to the ground to prevent them from toppling over due to wind or any other cause.
- Separate changing facility must be provided separately for each sex.
- Ablutions are to be cleaned/emptied on a regular basis, before they are full and contaminate the environment.
- Informal ablutions within the all riparian areas are prohibited.
- The entrances to the toilets will be adequately screened from public view.
- Sanitary hygiene bins will be provided for female staff.
- The Contractor will ensure that no spillage occurs when the toilets are cleaned or emptied and that a licensed service provider removes the contents from site.
- Toilet paper shall be provided.
- Should shower facilities be provided on site, the following controls must be imposed:
    - Positioning of the shower, and specifically its discharge point, will be carried out to ensure that erosion and build-up of detergents does not occur.
    - All discharge from the shower and other washing facilities must be managed to prevent environmental contamination.
    - Use of the shower facilities must be limited to staff or authorised persons only.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO - to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Maintenance register for ablution facilities.

11.3.5 Management of Workshop and Equipment

Management Objective:

- Minimise environmental impacts associated with workshops and equipment use.

Target:

- No environmental contamination associated with workshops and equipment use.

Management Actions:

- Vehicles must be maintained and serviced according to the manufacturers' standards
- Daily checklists must be completed by drivers and operators before the vehicles and equipment are used.
- Vehicles and equipment must be turned off when not in use.
- Maintenance of equipment and vehicles will be performed in such a manner so as to avoid any environmental contamination (e.g. use of drip trays).
- Leaking equipment to be repaired immediately or removed from the site.
- Suitable storage and disposal of hydraulic fluids and other vehicle oils.
- All diesel powered equipment and vehicles used in construction activities must be suitably serviced, maintained and repaired in order to minimise the emission of diesel particulate matter and reduce subsequent worker exposure to this carcinogenic substance.
- All vehicles and equipment will be kept in good working order and serviced regularly. Leaking equipment will be repaired immediately or removed from the site.
- Emergency on-site maintenance must be done over appropriate drip trays and all oil or fuel must be disposed of according to waste regulations. Drip-trays must be placed under vehicles and equipment when not in use.
- No washing of plant may occur near a watercourse. Plant to be washed in dedicated areas.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Recorded evidence of spillages.
- Vehicle and equipment checklists
- Training register.
- Contractor's method statement.

11.3.6 Management of Labour Force

Management Objective:

- Ensure suitable management of labour force to prevent security-related issues.
- Optimise the use of local labour.
- Provide a work environment that is conducive to effective labour relations.

Target:

- No complaints from adjacent landowners and community members regarding trespassing or misconduct by construction workers.
- No illegal fishing by labourers.
- All unskilled labour to be sourced from local communities.
- Supplier Development and BBBEE targets of TNPA are met.

Management Actions:

- Supplier development and BBBEE target should be included in contractor documents in line with TNPA's supplier development policy.
- Prevent trespassing of construction workers onto private property (outside of the Port of Mossel Bay).
- Workers must be provided with identity cards and must wear identifiable clothing.
- Make suitable provision for transport of workforce.
- Creating nuisances and disturbances in or near communities shall be prohibited.
- Machine / vehicle operators shall receive clear instructions to remain within demarcated access routes and construction areas.
- Designated and demarcated smoking areas must be provided, with special bins for discarding of cigarette butts.
- Create opportunities for the employment of women and the youth in line with national government priorities.
    - Where possible use labour-intensive methods of construction.
    - Use local labour as far as possible.

Responsibilities:

- Applicant – employment targets.
- TNPA Project Manager – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Labour-related targets.
- Construction worker ID cards.

11.3.7 Management of Health and Safety

Management Objective:

- Provide a safe and healthy working environment to construction workers and the public.

Target:

- Approved Health and Safety Plan.
- No reportable health and safety incidents.
- Compliance with the Occupational Health and Safety Act (Act No. 85 of 1993), Construction Regulations (2014) and other relevant regulations.

Management Actions:

- The Contractor must submit a Health and Safety Plan, prepared in accordance with the Health and Safety Specification, for the Health and Safety Agent's approval prior to the commencement of work.
- The Contractor shall ensure compliance to the requirements of the Health and Safety Specification and approved Health and Safety Plan throughout construction.

Health –

- The Construction Regulations (OHS Act 85 of 1993) require that all contractors conduct an initial health risk assessment of their workers activities prior to initiating any work on site.
- Ready access to drinking water must be provided at all work locations.
- Issuing of appropriate protective wear (jackets, hats and gloves)

Safety –

- First aid officers must be trained on site (levels 1 to 3) to deal with construction related injuries.
- When working in the area of encroachment is prevalent all open excavated trenches and foundations must be clearly marked and secured to keep people and fauna from falling in.
- Storage areas, assembling areas where construction material is stored on site must similarly be secured. No stacking and storing of material will be allowed underneath any operational power lines.
- The Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.
- Access by non-construction staff into any construction related sites must be restricted and clearly indicated as such by signposts.
- Maintain access control to prevent access of the public to the construction areas.
- The requirements of the Occupational Health and Safety Act (Act 85 of 1993) and related regulations shall be adhered to.
- Speed limits shall be enforced in all areas, including public roads and private properties. All drivers of the construction teams shall be sensitised to this effect and courteous behaviour is expected from everybody in this regard.

- Fencing and barriers will be in place in accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and comply with the provisions of the Fencing Act (Act No. 31 of 1963).
- Applicable notice boards and hazard warning notices will be put in place and secured. Night hazards will be indicated suitably (e.g. reflectors, lighting, and traffic signage).
- Emergency contact details will be prominently displayed.
- All construction personnel must be clearly identifiable. All employees must also be issued with employee cards for identification purposes.
- All workers will be supplied with the required Personal Protective Equipment as per the Occupational Health and Safety Act (Act No. 85 of 1993).
- Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times. All non-employees entering the site must receive induction into the hazards and risks of the site and the control measures to be observed.
- All complaints and/or problems related to impacts on man-made facilities and activities must be promptly addressed by the Contractor and documented.

Responsibilities:

- Health and Safety Agent, TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Dedicated Occupational Health and Safety system to be implemented by Contractor's Safety Officer. To be monitored and audited by the Client's Safety Agent, in terms of the Construction Regulations (2014).
- Contractor to implement management actions.

Monitoring Requirements:

- Occupational Health and Safety system – audited by Safety Agent.

11.3.8 Management of Emergency Procedures

Management Objective:

- Minimise environmental impacts associated with emergency procedures.

Target:

- No site fires to be caused by construction activities and workers.
- Approved emergency response procedures, where relevant.
- Emergency Preparedness.

Management Actions:

Fire –

- Comply with the National Veld and Forest Fire Act (Act No. 101 of 1998).
- Proper emergency response procedure to be in place for dealing with fires.
- Burning of waste is not permitted.
- Suitable precautions will be taken (e.g. suitable fire extinguishers, water bowsers, welding curtains) when working with welding or grinding equipment.
- Firefighting equipment to be strategically positioned throughout the site.
- All fire control mechanisms (firefighting equipment) shall be serviced annually and inspected monthly.
- All staff on site will be made aware of general fire prevention and control methods, and the name of the responsible person to alert to the presence of a fire.
- No fires are allowed on site, unless in dedicated areas approved by the Applicant.
- Dedicated smoking areas to be provided. Cigarette butts may not be disposed of onsite.
- No internal or external access roads shall be obstructed.

Accidental Leaks and Spillages –

- Proper emergency response procedure to be in place and communicated to designated persons for dealing with spills and leaks.
- Ensure that the necessary materials and equipment for dealing with spills and leaks are available on site in the form of a Spill Kit/s.
- Remediation of the spill areas will be undertaken to the satisfaction of the Applicant and ECO.
- In the event of a hydrocarbon spill, the source of the spillage will be isolated and contained. The area will be cordoned off and secured. The Contractor will ensure that there is always a supply of an appropriate absorbent material readily available to absorb, breakdown and where possible, encapsulate a minor hydrocarbon spillage.
- All staff on site will be made aware of actions to be taken in case of a spillage.
- Provide contact details of person to be notified in a case of spillages – signage to be displayed at strategic points within the construction domain (e.g. workshop, fuel storage area, hazardous material containers).
- Construction vehicles and mobile plant to be maintained in a safe operating condition to prevent any possible hydrocarbon leakages resulting in spillages.
- Drip trays to be positioned underneath the hydrocarbon substance containment components of all stagnant construction vehicles and mobile plant.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Approved Emergency Response Plan aligned with the Port.
- Training and awareness creation records.
- Signage displayed.
- Contractor's method statement.

11.3.9 Management of Access and Traffic

Management Objective:

- Ensure that all construction vehicles use only dedicated access routes to construction sites.
- Ensure that the community have reasonable access to the Port during construction.
- Ensure proper access control.
- Prevent unlawful access to construction domain.
- Adhere to agreements made with stakeholders regarding access.
- Ensure the safety of all road users and marine users by implementing proper signage and traffic control measures.
- Limit construction-related nuisance to service nodes.

Target:

- No reports of construction vehicles or boats using other unauthorised routes.
- No transporting of unsafe loads. Permits are to be obtained for abnormal loads.
- No speeding.
- No accidents.

Management Actions:

- The applicant must obtain the relevant wayleaves from the Departments prior to construction.
- Undertake negotiations and confirm arrangements with the adjacent landowners regarding the use of terrestrial and marine traffic arrangements.
- Site layout must clearly indicate parking areas for the construction vehicles.
- Construction vehicles should not be parked on public road access.
- Site access must be controlled and no unauthorised persons must be allowed onto the site.
- Ensure appropriate traffic safety measures are implemented.
- The Contractor must comply with all driving, vehicle, licensing and driver ability requirements.
- Permission required from the Project Manager for the movement of any vehicles and/or personnel outside of designated working areas.
- Existing roads shall be used as far as possible for construction purposes.
- Contractor to ensure safe access for adjacent landowners on all roads.

- Wet suppression of unpaved areas must be applied during dry windy periods, using a water cart and/or fixed sprinklers.
- Chemical suppression can also be used in conjunction with wet suppression. This involves the use of chemical additives in the water, which help to form a crust on the surface and bind the dust particles together. Chemical stabilisation reduces watering requirements, but any savings can be offset by the cost of the additives. Repeat treatments are usually required at intervals of 1-4 weeks. The method is best suited to permanent site roads and usually not cost-effective on temporary roads, which are common in construction sites.
- Provide hard-standing areas for vehicles and regularly inspect and clean these areas.
- The Contractor shall organise the site in such a manner that pedestrians and vehicles can move safely and without risks to health, including sufficient and suitable traffic routes and safe walkways with relevant signage.
- Access roads to be maintained in a suitable condition.
- Suitable erosion protective measures to be implemented for access roads during the construction phase.
- Traffic safety measures (e.g. traffic warning signs, flagmen) to be implemented.
- Consult with adjacent landowners, local authorities and communities to ensure that all affected parties are informed of the timing and extent of any disruptions.

Responsibilities:

- Health and Safety Agent, TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Signage displayed and maintained.
- Public complaints register.
- Contractor's method statement.

11.3.10 Management of Waste

Management Objective:

- Minimise environmental impacts associated with waste.
- Apply waste management principles of prevent, minimise, recycle or re-use, with disposal as a last option.

Target:

- No littering on construction site.
- Maintain a clean and tidy construction site.
- 100% record of all waste generated and disposed at waste disposal facilities.

- Valid disposal certificates for all waste disposed.
- Provision of adequate waste containers that are easily accessible and maintained.
- Waste bins to be removed and cleaned weekly.

Management Actions:

- Waste management activities must comply with the National Environmental Management: Waste Act (Act No. 59 of 2008).
- Vermin / weatherproof bins will be provided in sufficient numbers and capacity to store domestic waste. These bins must be kept closed to reduce odour build-up and emptied regularly to avoid overfilling and other associated nuisances.
- Where possible, waste must be separated at source (e.g. containers for glass, paper, metals, plastics, organic waste and hazardous wastes).
- Provide waste skips at the construction areas. These skips must be sufficient in number, the skip storage area must be kept clean, skips must be emptied and replaced before overflowing or spillage occurs.
- Ensure daily site clean-ups to prevent the build-up of litter
- The Contractor will ensure that no burying, dumping or burning of waste materials, vegetation, litter or refuse occurs. All waste will be disposed of at suitable licensed disposal sites, based on the waste type (general versus hazardous).
- Ensure that solid waste is transported so as to avoid waste spills en-route.
- The following requirements shall be incorporated into the waste management programme:
    - Solid Waste:
        - Littering on site and the surrounding areas is prohibited.
        - Clearly marked litterbins must be provided on site. The Contractor must monitor the presence of litter on the work sites as well as the construction campsite.
        - All bins must be cleaned of litter regularly.
        - All waste removed from site must be disposed at a municipal/permitted waste disposal site.
        - Excess concrete, building rubble or other material must be disposed of in areas designated specifically for this purpose and not indiscriminately over the construction site.
        - The entire works area and all construction sites must be swept of all pieces of wire, metal, wood or other material foreign to the natural environment.
        - Contaminated soil must be treated and disposed of at a permitted waste disposal site, or be removed and the area rehabilitated immediately.
        - Waste must be recycled wherever possible.
    - Liquid Waste
        - The Contractor must install and maintain mobile toilets at work sites.

- The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and sited with the intention of preventing pollution of the surrounding area and environment.
- All vehicles must be regularly serviced in designated area within the Contractors camp such that they do not drip oil. Where required, vehicles will be serviced in bunded areas and drip trays will be provided.
- All chemical spills must be contained and cleaned up by the supplier or professional pollution control personnel. Run-off from wash bays must be intercepted.

- Hazardous Waste:
  - No hazardous materials must be disposed of in the veld or anyplace other than a registered landfill for hazardous material. Hazardous waste must be stored in containers with tight lids that must be sealed and must be disposed at an appropriately permitted hazardous waste disposal site. Such containers must not be used for purposes other than those originally designed for.
  - The Contractor must maintain a hazardous material register.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Waste register.
- Recycling targets.
- Disposal certificates.
- Contractor's method statement.

11.3.11 Management of Storage and Handling of Non-Hazardous Material

Management Objective:

Ensure the protection of the natural environment and the safety of personnel on site, by the correct management and handling of hazardous substances.

Target:

- No pollution due to handling, use and storage of hazardous material.
- In the event of a spill, appropriate containment, clean up and disposal of contaminated material. Spills to be cleaned within 24 hours.

Management Actions:

- Hazardous substances must be stored and handled in accordance with the appropriate legislation and standards, which include the Hazardous Substances Act (Act No. 15 of 1973), the Occupational Health and Safety Act (Act No. 85 of 1993), relevant associated Regulations, and applicable SANS and international standards. Where required, the Contractor shall ensure he obtain the necessary authorisation/s or permit/s for the storage of hazardous chemical substances, including flammable substances.
- A copy of the Material Safety Data Sheet (MSDS) for each hazardous chemical substance stored or used on site must be available on site and communicated to the relevant persons who might be exposed to the hazards thereof.
- Storage and use of hazardous materials will be strictly controlled to prevent environmental contamination, and must adhere to the requirements stipulated on the MSDS.
- Where flammable liquids are being used, applied or stored the workplace must be effectively ventilated.
- No person may smoke in any place in which flammable liquid is used or stored.
- Install an adequate number of fire-fighting equipment in suitable locations around the flammable liquids store.
- Where flammable liquids are decanted, the metal containers must be bonded or earthed.
- No flammable material (e.g. paper, cleaning rags or similar material) may be stored together with flammable liquids.
- Staff that will be handling hazardous materials must be trained to do so.
- Any hazardous materials (apart from fuel) must be stored within a lockable store with an impermeable floor. Suitable ventilation to be provided.
- All storage tanks containing hazardous materials must be placed in bunded containment areas with impermeable surfaces. The bunded area must be able to contain 110% of the total volume of the stored hazardous material.
- Fully stocked spill kits must be available for the clean-up of hazardous material spillages.
- Provide secondary containment where a risk of spillage exists.
- Drip trays to be placed under parked construction vehicles, equipment and other receptacles of hazardous material to prevent spillages.
- In the event of spillages of hazardous substances, the appropriate clean up and disposal measures are to be implemented.
- Spill reporting procedures to be displayed at all locations where hazardous substances are being stored.
- Hazardous materials will be disposed of at registered sites or handed to registered hazardous waste disposal facilities for disposal / recycling.
- Proper and timeous notification of any pollution incidents associated with hazardous materials.
- Hazardous chemical substances containers be clearly labelled with the contents and main hazardous category e.g. “Flammable” or “Corrosive”.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Evidence of spillages.
- MSDS register.
- Training register.
- Disposal certificates.
- Contractor's method statement.

11.3.12 Management of Pollution Generation Potential

Management Objective:

- Ensure that all possible causes of pollution are mitigated as far as possible to minimise impacts to the surrounding environment.
- Prevent polluted water from entering the marine environment.

Target:

- No complaints regarding pollution.
- No measurable signs of pollution.
- Noise – Comply with SANS 10103:2008.

Management Actions:

General –

- Accidental pollution incidents shall be reported to the ECO immediately. The pollution incident to be cleaned-up by the Contractor or a nominated clean-up organization immediately.

Noise –

- The provisions of SANS 10103:2008 will apply to all areas at the perimeter of the site, within audible distance of residents.
- Working hours to be agreed upon with Applicant, so as to minimise disturbance to landowners and community members.
- No amplified music will be allowed on the site. The use of radios, tape recorders, compact disc players, television sets etc. will not be permitted unless at a level that does not serve as an intrusion to adjacent land-owners.
- Construction activities generating output levels of 85 dB or more will be confined to the hours during normal working hours, unless adjacent landowners have been given adequate notice.

- The Contractor will take preventative measures (e.g. screening, muffling, timing, pre-notification of affected parties) to minimise complaints regarding noise and vibration nuisances from sources such as power tools.
- Cognisance must be taken of adjacent landowners in terms of the site layout. Ablution facilities or eating areas must ideally not be located directly adjacent to the site boundary where houses/ offices as situated in a close proximity where odour or noise may become a nuisance.
- Noise control measures must be implemented. All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. Interested and affected parties must be informed of the excessive noise factors.
- The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance. Normal working hours must be clearly indicated to adjacent landowners.
- Limit use of a vibratory hammer and rock drill underwater to remove damaged piles to during slack and low tide periods.

Dust –

- Appropriate dust suppression measures or temporary stabilising mechanisms to be used when dust generation is unavoidable (e.g. dampening with water, chemical soil binders, straw, brush packs, chipping), particularly during prolonged periods of dry weather. Dust suppression to be undertaken for all bare areas, including construction area, access roads, borrow pits, site yard, etc.
- Speed limits to be strictly adhered to.
- The Contractor will take preventative measures to minimise complaints regarding dust nuisances (e.g. screening, dust control, timing, and pre-notification of affected parties).

Lights –

- Prior to construction the position and type of lighting will be planned to ensure unnecessary light pollution will be eliminated.
- All lighting installed on site must not lead to unacceptable light pollution to the surrounding community and natural environment (e.g. use of down-lighters).

Erosion–

- The construction camp, site offices, ablution facilities and storage areas must all be established on existing paved or concrete areas to prevent any erosion.

Cement and Concrete Batching –

- Cement mixing to take place on an impervious surface (e.g. cement mixing pit).
- Batching operations to take place in a designated area, which will be kept clean at all times.

- Location of batching plant to be approved by the Applicant, with due consideration of the relevant management measures.
- Ensure separation of clean and dirty water from batching plant.
- Wastewater from batching operations to be suitably disposed of.
- Waste concrete and cement sludge to be removed on a regular basis (to prevent overflowing) and to be disposed of at a suitable facility.
- Unused cement bags will be stored in an area not exposed to the weather and packed neatly to prevent hardening or leakage of cement.
- Used cement bags will be stored so as to prevent windblown dust and potential water contamination. Used bags will be disposed of adequately at a licenced waste disposal facility.
- Limit concrete batching to single sites where possible.
- Concrete transportation must not result in spillage.
- Cleaning of equipment and flushing of mixers will not result in pollution, with all contaminated wash water entering the waste water collection system.
- Suitable screening and containment will be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations.
- All contaminated water and fines from exposed aggregate finishes will be collected and stored in sumps and will be adequately disposed of.
- All visible remains of excess concrete will be physically removed on completion of the plastering or concrete pouring and disposed of in an acceptable manner.
- Any spilled concrete to be cleaned up immediately.

In practice all wastes arising from construction activities are to be handled; transported and disposed of in accordance with the relevant regulations. All efforts must be made to minimise, reclaim or recycle waste, and failing that, dispose of it in a manner licensed by the government for that purpose.

Pollution control –

- Remove from site all pollution containment structures.
- Remove from site all temporary sanitary infrastructure and waste water disposal systems. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner.

Sewage –

- The Contractor shall provide sanitation facilities at all camps, offices, workshops and construction sites for staff and visitors.

Wastewater –

- All runoff from fuel depots, workshops, truck washing areas and wash water from concrete vehicles and other equipment shall be collected and directed through oil traps before discharging into a watercourse.
- The Contractor shall provide suitable retention and filtration structures (which shall be properly maintained) for the collection of wastewater.

Solid waste –

Definition: "Refuse" refers to all construction waste (such as rubble, cement bags, waste cement, timber, can, other containers, wire and nails), household and office waste.

- Refuse shall be collected and stored in demarcated, fenced areas in skips and/or bins. The fenced areas or containers must be designed to prevent refuse from being blown out by wind and must be strategically and conspicuously placed throughout the site.
- Wherever possible waste that is recyclable is to be recycled.
- Refuse which cannot be recycled shall be disposed of at a landfill site approved by the ECO. Refuse may not be burned nor buried on site.
- Construction rubble shall be disposed of in demarcated spoil dumps or at disposal sites approved by the ECO.
- Ensure waste disposal license is in place for construction waste.
- Demarcate waste areas clearly with signage and ensure these areas are bunded.
- Ensure construction workers are educated about waste recycling and waste areas.
- Remove other waste that drifts into the study area, even if not from construction activities e.g. plastics.

Hazardous substances –

The Contractor must ensure that:

- Employees receive the necessary information and training to be able to use and store hazardous chemical substances safely.
- Employees obey lawful instructions regarding:
    - The wearing and use of protective equipment
    - The use and storage of hazardous chemical substances
    - The prevention of the release of hazardous chemical substances
    - The wearing of exposure monitoring and measuring equipment
    - The cleaning up and disposal of materials containing hazardous chemical substances
    - Housekeeping, personal hygiene and the protection of the environment
- The risk assessments required in terms of Construction Regulations include employee exposure to hazardous chemical substances and that the necessary measures be taken

to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace.

- Suppliers provide the necessary information in the form of a material safety data sheet regarding a hazardous chemical substances required to ensure the safe use and storage of that substances.
- An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the hazardous chemical substances.
- Hazardous chemical substances containers be clearly marked with the contents and main hazardous category e.g. “Flammable” or “Corrosive” and the reference number of the hazardous chemical substances on the list indicated above.
- Hazardous chemical substances, for example asbestos dust, are not cleared by using compressed air but must be vacuumed.
- No person eats or drinks in a hazardous chemical substances workplace.
- Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

Responsibilities:

- TNPA Project Manager, ECO and Contractor’s EO – to monitor compliance.
- Contractor to implement management actions.
- Contractor to conduct environmental monitoring for air quality (dust), noise and water quality.

Monitoring Requirements:

- Public complaints register.
- Evidence of pollution.
- Review periodic results from water quality monitoring.
- Contractor’s method statement.

11.3.13 Management of Electrical Services

Management Objective:

Ensure electrical services are not impacted or disrupted during construction.

Target:

- No unplanned disruption to electrical services to tenants and land users around the Port.
- No impact to electrical services outside the construction footprint.
- Any electrical substations or services which are decommissioned during the upgrade must be adequately recommissioned before project handover.

Management Actions:

- Mossel Bay's Electricity main records must be consulted prior to commencement of activities to determine the exact location of electrical services.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Electricity records.
- Contractor's method statement.

11.3.14 Management of Visual Aspects

Management Objective:

- Minimise impacts to the aesthetics / visual quality.
- Ensure that the visual appearance of the construction site is not an eyesore the adjacent areas.

Target:

- No complaints regarding impacts to visual quality.

Management Actions:

- Advertising and lighting will be in accordance with relevant standards.
- Lighting must not constitute an eyesore / hazard to users of the road and the surrounding communities.
- Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas.
- The site will be shielded / screened to minimise the visual impact, where practicable.
- On-going housekeeping to maintain a tidy construction area.
- The extent of unnecessary damage to natural surrounds must be kept to a minimum.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.

11.3.15 Management of Archaeological, Historic Built Environment and Cultural Features

Management Objective:

- To have no adverse impact on the historical resources, structures and inheritance of the area.
- To avoid damage to or destruction of previously unknown or excavated archaeological artefacts during construction.
- The preservation and appropriate management of new findings should these be discovered during construction.

Management Target:

- No archaeological, historical built environment and cultural resources to be damaged during construction.

Management Actions:

- Archaeological monitoring and/or implementation of a reporting protocol during groundworks will ensure that should any archaeological material is encountered it can be recorded and recovered.
- Reconstruction of submerged portion of slipway and the integration of the new structure with the surviving slipway above the waterline.
- Repair of existing historic fabric will ensure the facility can return to full operational usefulness, which will ensure its long-term survival.
- In the event of human remains being uncovered during work, all activities in the vicinity must cease until a suitably qualified archaeologist and SAHRA and HWC have been notified, the significance of the material has been assessed and a decision has been taken as to how to deal with it.
- A protocol for reporting palaeontological finds should be commissioned from a suitably qualified palaeontologist and implemented during all intrusive ground works.
- Although the historical seawall will not be affected by the proposed upgrade care must be taken in both the design and construction of the new administration building and in work related to other elements of the upgrade that the wall is not compromised or damaged in any way.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Proponent - acquire permits.
- Permits.
- Contractor's method statement.

11.3.16 Management of Environmental Monitoring

Management Objective:

- Water quality monitoring is undertaken to ensure that the Recommended Special effluent limits for physicochemical properties and organic and inorganic constituents are met.

Target:

- No further negative changes to water quality.

Management Actions:

- Continue the Long-Term Ecological Monitoring Programme implemented by TNPA for the Port of Mossel Bay that is being undertaken by the CSIR.

Responsibilities:

- TNPA Project Manager, TNPA Environmental Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Monitoring results.
- Contractor's method statement.

11.3.17 Management of Water on Site

Management Objective:

- Minimise environmental impacts associated with storm water as well as water services for construction workers.
- Minimise stormwater runoff from the site onto neighbouring roads.
- Minimise water use through recycling and water efficient practices.

Target:

- No visual evidence of erosion caused by wastewater or stormwater practices.
- No environmental contamination associated with wastewater or stormwater practices.

Management Actions:

- All construction activities to comply with the National Water Act (Act No. 36 of 1998).
- During the construction stage, water will be required for various purposes, such as concrete batching, washing of plant and equipment in dedicated areas, dust suppression, potable use by construction workers, etc. Water tankers will supply water to the site.

- Manage stormwater from construction site to avoid environmental contamination and erosion.
- Establish a dedicated vehicle maintenance area and wash-bay, where suitable storm water management measures are in place to prevent pollution.
- Manage stormwater from construction site to avoid environmental contamination and erosion.
- Stormwater runoff from workshops, vehicle maintenance area, wash-bays and other potential pollution sources shall be collected and treated in hydrocarbon separation pits/tanks before discharged to drains and waterways.
- Measures must be taken to divert unpolluted water and runoff away from the site.
- All discharges to comply with legal requirements associated with the National Water Act (Act No. 36 of 1998).
- Ensure proper storage of material (including fuel, paint) that could cause water pollution. Ensure proper storage and careful handling of hazardous substances with spill prevention materials at hand.
- Visual inspections for the occurrence of erosion must be undertaken on a weekly basis.
- Reduce sediment loads in water from dewatering operations. All dewatering must be done through temporary sediment traps (e.g. straw bales). These are to be serviced regularly and removed when no longer in use. Materials can be re-used.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Disposal certificates
- Contractor's method statement.

11.3.18 Management of Marine Environment

Management Objective:

- Ensure that the marine environment is protected and incurs minimal negative indirect impact to water quality from construction activities.

Target:

- Minimise benthic habitat destruction and potential loss of benthic marine biota.
- Minimal impact to water quality through construction activities.

Management Actions:

- Restrict construction activities, such removal of old concrete sections, to area around slipway and lead in jetty.
- Build the extension of the sideslip platform to minimum size required.
- Remove any building rubble that gets deposited on the benthic zone as soon as possible.
- Build new concrete structures as a precast to avoid any concrete spills in the water.
- Ensure proper stormwater drainage in place to reduce potential runoff from construction activities on slipway.
- When working underwater minimize or avoid stirring up sediment that will impact on turbity.
- Dredging within the slip where there is accumulation of sand may be required occasionally. Where dredging is required, deposit dredged material according to the TNPA maintenance dredging management plan. When dredging use least-impact techniques such as:
    - The clamshell dredger
    - During slack tide and low tide periods
    - At low to moderate excavations rates
    - Using bubble net technology to prevent the transport of sediment to other parts of the Bay
    - Strict hopper loading management to avoid the loss of dredge spoil into the bay during transport.
- When working underwater minimize or avoid stirring up sediment that will resuspend contaminated sediments.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Contractor's method statement.
- Water quality monitoring results.

11.3.19 Management of Rehabilitation

Management Objective:

- Adequate reinstatement and rehabilitation of construction areas

Target:

- Complete site clean-up.
- Reinstate and rehabilitate areas disturbed by construction activities.

Management Actions:

- After the construction phase, the construction area must be reinstated to the same or better condition than it was prior to construction.
- Clear and completely remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services, and fixtures.
- Clear the site of all inert waste and rubble, including surplus rock, foundations and batching plant aggregates. After the material has been removed, the site shall be re-instated and rehabilitated to a level equal to or better than prior to construction.
- Load and haul excess spoil and inert rubble to fill in borrow pits/dongas or to dump sites indicated/approved by the TNPA Construction Manager.
- Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.
- Remove from site all pollution containment structures.
- Remove from site all temporary sanitary infrastructure and wastewater disposal systems. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner.
- Establish further specifications for maintenance.

Responsibilities:

- TNPA Project Manager, ECO and Contractor's EO – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Public complaints register.
- Contractor's method statement.

11.4 Operational Phase

The operational phase activities related to the ship repair facility include operation of the ship repair facility, management of office and staff, management of waste, maintenance of infrastructure and management of facilities including the stormwater management and recycling system.

11.4.1 General Environmental Management

Note that where any activity and aspect associated with the operational phase of the project coincides with the receiving environment and activities of the construction phase (see **Section 11.3**), the same management requirements will apply.

11.4.2 Management of Reinstatement and Rehabilitation

Management Objective:

- Adequate reinstatement and rehabilitation of areas affected by operational and maintenance activities.

Target:

- Complete site clean-up.
- Reinstate and rehabilitate entire affected area.
- No justifiable complaints received.

Management Actions:

- Entire footprint of area affected by operation and maintenance activities to be reinstated and rehabilitated.
- Clear the area of all inert waste and rubble.
- Remove all domestic waste for disposal at a registered waste disposal site, reuse or recycling.
- Remove all temporary ablution facilities.

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Public complaints register.
- Staff-related targets.
- Waste register.
- Recycling targets.
- Disposal certificates.

11.4.3 Management of Archaeological, Historic Built Environment and Cultural Features

Management Objective:

- To have no adverse impact on the historical resources, structures and inheritance of the area.

Management Target:

- No archaeological, historical built environment and cultural resources to be damaged during operation.

Management Actions:

- It is recommended that the existing ship cradle and winch house machinery that is to be removed is recorded before removal and is then either offered to a suitable local museum or that provision is made for its retention and display at the ship repair facility.

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Permits.

11.4.4 Management of Marine Environment and Water Quality

Management Objective:

- Ensure that the marine environment is protected and incurs minimal negative indirect impact to water quality from operational activities.
- Water quality monitoring is undertaken to ensure that the Recommended Special effluent limits for physicochemical properties and organic and inorganic constituents are met.

Target:

- Minimise benthic habitat destruction and potential loss of benthic marine biota.
- Minimal impact to water quality through operation activities.

Management Actions:

- Monitor maintenance activities and educate workers on habitat health.
- Minimise trampling on benthic habitats.
- For underwater maintenance minimize or avoid stirring up sediment that will impact on turbidity.
- Ensure adequate bunding and stormwater system to collect pollution sources such as surface cleaning, treatment operations; oil transfer operations; servicing of machinery and other equipment, and side slipping activities.
- Use a freshwater recycling system – freshwater is used to clean hulls of ship 4) Upgrade services for sewer and water (salt and fresh).
- Continue the Long-Term Ecological Monitoring Programme implemented by TNPA for the Port of Mossel Bay that is being undertaken by the CSIR.
- Where maintenance dredging is required, deposit dredged material according to the TNPA maintenance dredging management plan.
- When dredging use least-impact techniques such as:
  - The clamshell dredger
  - During slack tide and low tide periods
  - At low to moderate excavations rates

  - Using bubble net technology to prevent the transport of sediment to other parts of the Bay
  - Strict hopper loading management to avoid the loss of dredge spoil into the bay during transport.
  - When working underwater minimize or avoid stirring up sediment that will resuspend contaminated sediments
- Ensure waste disposal license is in place for waste.
- Demarcate waste areas clearly with signage and ensure these areas are bunded.
- Ensure construction workers are educated about waste recycling and waste areas.
- Remove other waste that drifts into the study area, even if not from construction activities e.g. plastics.

Responsibilities:

- TNPA Environmental Manager – to monitor compliance.
- Contractor to implement management actions.

Monitoring Requirements:

- Contractor's method statement.
- Water quality monitoring results.

11.4.5 Management of Maintenance Staff

Management Objective:

- Ensure suitable management of staff (including sub-contractors) to prevent security-related issues or disturbance to landowners and community members.
- Provide a work environment that is conducive to effective labour relations.

Target:

- No complaints from landowners and community members regarding trespassing or misconduct by staff.

Management Actions:

- Prohibit trespassing of staff on private property.
- Staff must be provided with identity cards which must be displayed at all times.
- Designated smoking areas must be provided, with special bins for discarding of cigarette butts.
- Use local labour as far as possible, where necessary (e.g. unskilled labour during maintenance).

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Public complaints register.
- Staff-related targets.

11.4.6 Maintenance and Access of Port

Management Objective:

- Manage environmental impacts associated with Port maintenance.
- Restrict operation and maintenance activities to the Port.
- Safeguarding of sensitive features and existing services.

Target:

- Access control in place for maintenance activities.
- No damage to be caused to sensitive environmental features (including heritage resources, structures and infrastructure) outside of the Port.

Management Actions:

- During maintenance related activities, damage to access gates, access roads, fencing and/or private property, will be restored to its original condition.
- Restrict operation and maintenance activities to the Port.

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- No movement outside of Port, unless the landowner has been notified.
- Public complaints register.

11.4.7 Management of Health and Safety

Management Objective:

- Provide and maintain a safe and healthy working environment to workers and the public.

Target:

- No reportable health and safety incidents.
- Compliance with the Occupational Health and Safety Act (Act No. 85 of 1993) and relevant accompanying regulations.

Management Actions:

- Applicable notice boards and hazard warning notices will be put in place and secured.
- The Applicant shall ensure compliance to the requirements of the Health and Safety Specifications.

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Occupational Health and Safety System.

11.4.8 Stormwater Management and Recycling System

Management Objective:

- Minimise environmental impacts associated with stormwater.

Target:

- No environmental contamination associated with wastewater or stormwater practices.

Management Actions:

- Implement stormwater management and recycling system plan for the development.
- Prevent water quality deterioration of the marine environment from stormwater discharges.
- No illegal discharges into the marine environment to be allowed.

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Public complaints register.
- Water quality monitoring results.

11.4.9 Management of Waste

Management Objective:

- Minimise environmental impacts associated with waste during operation and maintenance activities.
- Apply waste management principles of prevent, minimise, recycle or re-use, with disposal as a last option.

Target:

- No littering on site.
- Clean and tidy construction site and servitude.
- 100% record of all waste generated and disposed at waste disposal facilities.
- Valid disposal certificates for all waste disposed.
- Provision of adequate waste containers that are easily accessible and maintained.
- Waste bins to be removed and cleaned weekly.

Management Actions:

- Implement a waste management hierarchy of reduce, re-use, recycle, treatment and disposal.
- All occupants must be encouraged to apply best practice in terms of waste management.
- Recycling facilities to be provided on site (bins for organic, plastic, tins, paper, garden waste and composting).

Responsibilities:

- Applicant – monitor compliance and implement management actions.

Monitoring Requirements:

- Public complaints register.
- Waste register.
- Recycling targets.
- Waste disposal certificates.

11.5 Decommissioning

Post to the economic lifespan of the ship repair facility at Mossel Bay Port, decommissioning and rehabilitation will comply with the appropriate environmental legislation and best practices at that time.