

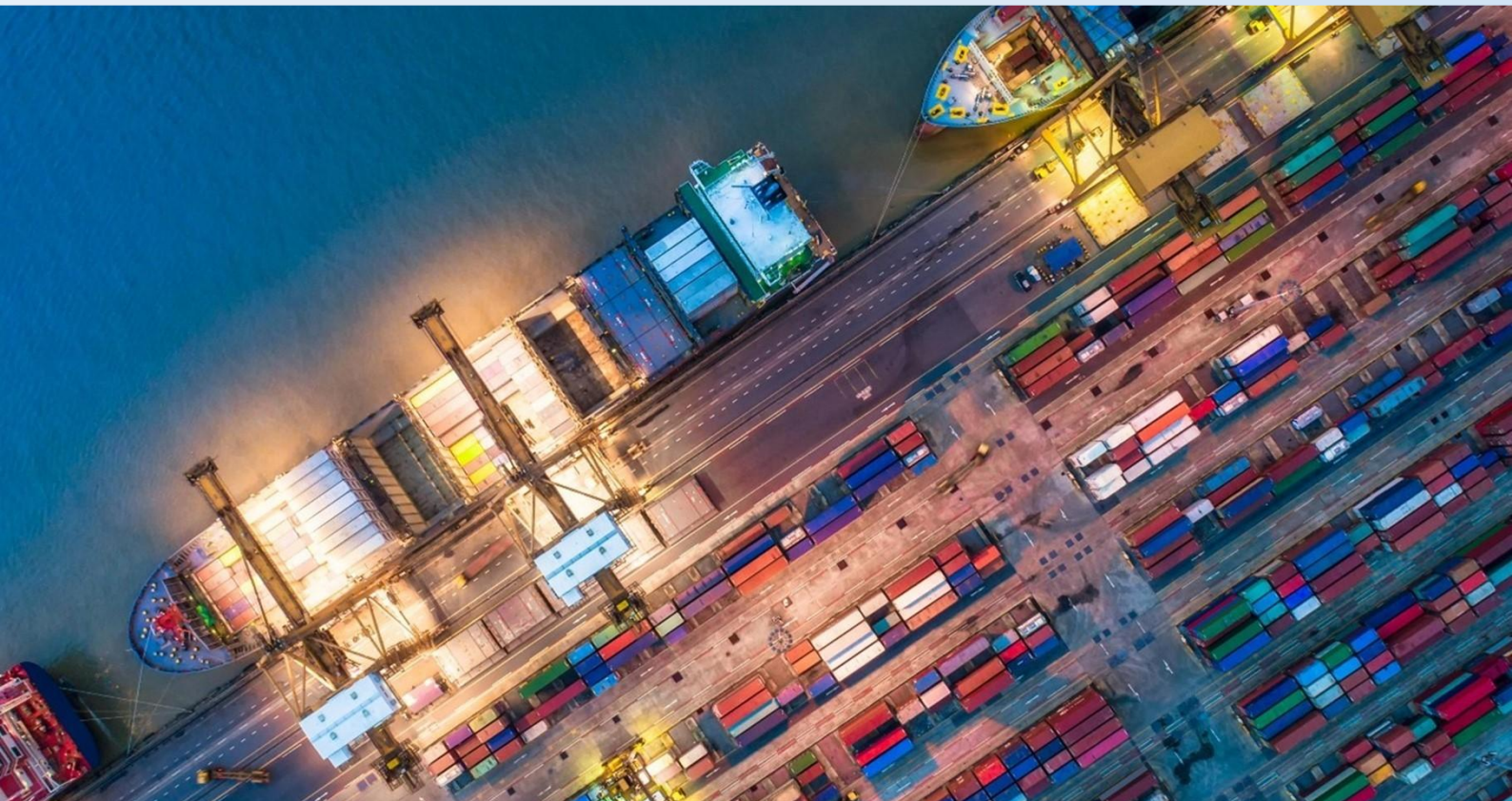


Transnet National Ports Authority

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE DEVELOPMENT OF NEW BERTH 605 AND ASSOCIATED INFRASTRUCTURE TO SUPPORT THE CONTAINER HANDLING FACILITY, PORT OF RICHARDS BAY, KWAZULU- NATAL

Scoping and EIR Process

DFFE Ref No.: 14/12/16/3/3/2/2656



Transnet National Ports Authority

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TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 43102871

OUR REF. NO. 14/12/16/3/3/2/2656

DATE: SEPTEMBER 2026

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Scoping and EIR Process

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Project number	43102871
Report number	XRB.E.0030-T001-PLN-0024

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AMAFA	Amafa aKwaZulu-Natali (Heritage KwaZulu-Natal)
BA	Basic Assessment
BAR	Basic Assessment Report
BEPP	Built Environment Performance Plan
CA	Competent Authority
CBA	Critical Biodiversity Area
CEM SOP	Construction Environmental Management Standard Operating Procedure
CM	Construction Manager
CV	Curriculum Vitae
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EO	Environmental Officer
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
KZN	Kwa-Zulu Natal
MERC	Minimum Environmental Requirements for Construction
MPA	Marine Protected Area
MSDF	Municipal Spatial Development Framework
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998) (as amended)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (as amended)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 10 (Act 10 of 2004) (as amended)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (as amended)
NEM:PAA	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (as amended)

Acronym/Abbreviation	Definition
NHRA	National Heritage Resource Act (Act 25 of 1999)
NPA	National Ports Authority
NPAES	National Protected Area Expansion Strategy
OHSA	Occupational Health and Safety Act, 1993 (Act 85 of 1993)
PER	Project Environmental Resource
PES	Project Environmental Specification
PM	Project Manager
PoRB	Port of Richards Bay
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SDS	Safety Data Sheet
TPNA	Transnet National Ports Authority

1. INTRODUCTION

1.1. OVERVIEW

The Transnet National Ports Authority (TNPA) functions in terms of the National Ports Act (No.12 of 2005) in which TNPA is responsible for the provision of port services and facilities within all ports of South Africa. The TNPA must also plan to improve, develop and maintain port infrastructure. TNPA has identified various development opportunities across the South Dunes, Newark and Bayview precincts within the Port of Richards Bay (PoRB) which are reflected in the Port Development Framework Plan (PDFP) and the PoRB Master Plan 2021 – 2035.

The PoRB is one of two main dry bulk ports in South Africa. The PoRB is the largest exporter of coal in South Africa, and it serves the hinterlands of Northern KwaZulu-Natal (KZN), Gauteng and Mpumalanga. By tonnage, the port has the largest Dry Bulk Terminal in South Africa and handles approximately 54% of the country's total dry bulk cargo demand (PDFP, 2022).

The proposed Berth 605 reflects in the PoRB Master Plan, 2021-2035 and in the PDFP. The new berth and associated infrastructure are intended to be developed as the last of the 600 series Berths and will consequently be adjacent to the existing 600 series Berths located in the Bayview Precinct in the western region of the PoRB. The intention of the proposed new Berth 605 and associated infrastructure is to serve the proposed new Container Handling Facility (CHF) that is ultimately intended to increase container volumes handled at the port to stimulate economic development in the region. In addition to the Berth 605 development, only the disturbance footprint of the CHF is assessed within this Scoping and Environmental Impact Reporting (S&EIR) process, the construction and operation of the CHF will be assessed at a later stage in an application submitted by the CHF operator.

The proposed development therefore requires Environmental Authorisation (EA), supported by a S&EIR process in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), Environmental Impact Assessment Regulations, 2014 as amended (GNR 326) (EIA Regulations).

The EIR concluded that the proposed development can proceed subject to the implementation of the recommended mitigation measures and environmental management commitments. These commitments include the implementation of a Biodiversity Compensation Plan, management of dredging and dredged material disposal activities, protection of heritage resources, implementation of climate change adaptation measures, and the ongoing monitoring of key environmental indicators. This EMP has therefore been developed to translate the findings and recommendations of the EIR into practical management measures for implementation during the construction, operation and maintenance phases of the project.

1.2. PROJECT LOCATION & DESCRIPTION

Berth 605 is located within the PoRB, King Cetshwayo District Municipality and Umhlathuze Local Municipality within the KZN Province (**Figure 1-1**). The project structures and infrastructure are located on the following land parcels:

- Portion 45 of Parcel 5333 of Richards Bay;
- Portion 0 of Parcel 397 of Richards Bay;
- Portion 0 of Parcel 16230 Umhlathuze; and

- Portion 21 of Parcel 5333 of Richards Bay.

The site is bounded by an existing rail line to the North, the existing Berths 606, 607 and 608 to the East, the Seafarers Club and Harbour Rd to the West and the basin for the 600 Series berths to the South. The temporary storage areas extend across Urania Road, and the new access road extends beyond the Seafarers Club. (**Figure 1-2**).

The approximate centre point co-ordinates for the Berth 605 project area are:

28°47'23.82"S; 32° 1'34.43"E.

In addition to the berth infrastructure, the project includes associated dredging works, road and rail infrastructure, bulk services infrastructure, temporary construction areas, and biodiversity compensation areas required to offset unavoidable impacts associated with the development. The biodiversity compensation areas form an integral component of the overall project and will be managed in accordance with the approved Biodiversity Compensation Plan.



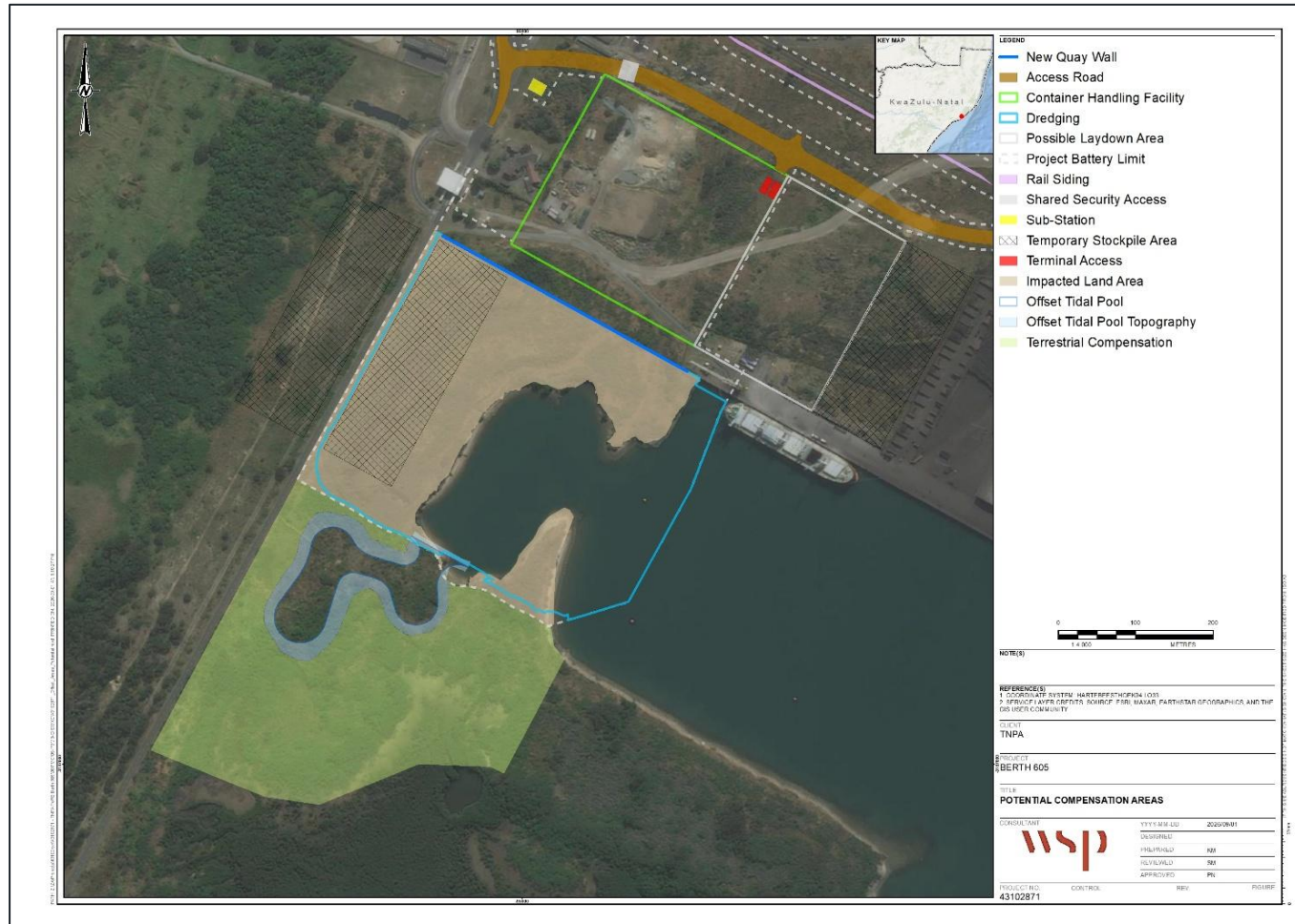


Figure 1-2 - Layout Map of the Berth 605 project

1.3. PROPOSED PROJECT DEVELOPMENT ACTIVITIES

1.3.1. CONSTRUCTION PHASE

The construction process will follow industry-standard methods and techniques and will take place over a 2-year construction period. Key activities associated with the construction phase are described in **Table 1-1** below.

Table 1-1 – Construction activities

Activity	Description
Quay Wall Construction Sequence	
Site Clearing	The site is to be cleared and cleaned to facilitate the excavation and dewatering for the construction of the quay wall.
Excavation	<ul style="list-style-type: none"> Excavation to start at the end adjacent to the existing Berth 606. Excavate and shore the excavation sides of the loose sands, silts and clay material. Dewatering will be required. It is recommended that the excavation is done based on the completion of a 20m long section of the quay wall before progressing on to the next 20m long section. This is to reduce the dewatering effort and to maintain a manageable site. The contractor can propose longer excavation sections for review and approval of the Supervisor. There is a rock level that varies in depth from -7m Chart Datum (CD) to -14m CD generally dipping from East to West. The contractor will shore the work site to maintain safe access for plant and material and staff. The contractor must include monitoring (hourly automated total station reading of control points on Berth 606) and include digital tilt meters. As the excavation progresses to the foundation of Berth 606, the contractor must proceed with underpinning of the exposed edge of Berth 606. In a preplanned and agreed sequence of construction a block no wider than 2m will be excavated from under the existing Berth 606 foundation and backfilled with mass concrete. The next section will be excavated (not adjacent to the previous) and the process repeated until the excavation has progressed to the final Berth 605 foundation depth with the existing Berth 606 then supported (underpinned) on the exposed edge. Clean and prepare the rock for the foundation. Place blinding concrete. Cast the reinforced concrete base for the new Berth 605 quay wall. Cast the first 2m high wall sections of the quay wall and back fill with suitable graded fill material to achieve the specified bulk density. Repeat the process of casting 2m high walls followed by back fill until the top of the gravity structure is reached. Prepare shutters for the cope beam and fix reinforcement and formwork for the services tunnels and access ducts. Cast the cope beam. Repeat for the next 20m long quay wall section, following completion of a quay wall section, Install filter sock (A6 BIDIM tube filled with gravel) to seal between adjacent quay walls (to prevent fine material passing between the quay wall sections). Backfill behind the quay wall (Land side) with graded core rock backfill to specification. Backfill in front of the quay wall (seaside) with selected rock to the underside of the future scour rock protection. Complete the quay wall. Install bollards, water pipes to landing valves and other service ducts etc.

Activity	Description
	<ul style="list-style-type: none"> Install fenders¹ after dredging.
Dredging Methods	
Excavation and dredging	<ul style="list-style-type: none"> The excavation of road material and a quay wall excavation will occur in the dry, prior to the commencement of the main basin dredging activities. Disposal of excavated land-based materials – The disposal of excavated material from elsewhere within the construction footprint (excluding the berth basin) includes road, rail, construction laydown area excavation and earth wall concrete and steel components (64 900m³) will be disposed of at a registered land-based disposal site. The material excavated from the compensation area is approximately 30 000 m³ and will be used as backfill throughout the site where required. The excess material will be filled in the caisson pond (if timing allows) or disposed of at a registered landfill site. Disposal of dredged material from the basin - the dredging will take place using a Cutter Suction Dredger (CSD) with material loaded into barges and transported to the existing registered offshore disposal site.
Scour Protection	
Revetment construction	A revetment (sloped embankment) will be constructed on the seaward side of the Urania Road. This slope must be protected against wave and propeller action to maintain the structural integrity of the Urania Road. A riprap scour protection system will be considered.
Access Road	
Phase 1	<ul style="list-style-type: none"> Construct the T-junction of the access road with Urania Road. Construct the access road from the Urania Road T-junction to the security facility to the full final cross-section: dual carriageway with 2 lanes per direction. Partially construct the access road from the security facility to Ventura Road, a single carriageway built on the future westbound carriageway alignment with 1 lane per direction. Construct temporary road widenings for: <ul style="list-style-type: none"> The westbound lane must split to 2 lanes before entering the 2-lane security facility The eastbound 2 lanes must merge from 2 to 1 lane after exiting the security facility. The eastbound right-turning lane to serve the CHF access Construct the T-junction of the access road with Ventura Road. Construct the interim 4-way intersection on the shared access road with the southern approach to serve the CHF and the northern approach to serve the future rail siding area. Construct the security facility.

¹ Fenders in dredging are specialized, heavy-duty cushioning devices used to protect dredging vessels, hopper barges, and specialized equipment from impact damage during marine operations.

Activity	Description
	<ul style="list-style-type: none"> Construct the permanent surfaced sidewalk along the southern edge of the carriageway. Construct a temporary unsurfaced sidewalk along the northern edge of the carriageway. Construct the kerbside street-lighting on the southern edge of the carriageway.
Phase 2	<ul style="list-style-type: none"> Construct the second (eastbound carriageway) from the security facility to the Ventura Road T-junction, with 2 eastbound lanes and a 3rd right-turn lane at the 4-way intersection. Upgrade the interim T-junction of the access road and Ventura Road for the dual carriageway road configuration. Convert the previously constructed carriageway to 2 lanes westbound and remove the localised road widenings. Upgrade the interim 4-way junction on the access road for the dual carriageway configuration. Construct the kerbed median island. Construct the permanent surfaced sidewalk on the northern edge of the eastbound carriageway. Construct the kerbside street-lighting on the northern edge of the eastbound carriageway.
<u>Biodiversity Compensation Areas</u>	<u>Establishment and management of biodiversity compensation areas, including habitat creation, rehabilitation, revegetation, transplanting of suitable flora where required, creation of replacement tidal habitat, management of alien invasive vegetation, and implementation of long-term monitoring measures in accordance with the Biodiversity Compensation Plan.</u>

1.3.2. KEY CONSTRUCTION DATES

The project infrastructure will be constructed in accordance with different procurement packages, the key dates for construction of these packages are indicated in the table below.

Table 1-2 – Key Construction Dates

Package	Construction Start Date	Construction End Date
1 – Quay Wall	May 2027	March 2028
2 - Dredging	May 2027	January 2029
3 - Rail	May 2027	February 2028
4 - Road	May 2027	November 2027
5 – Bulk Infrastructure	May 2027	October 2027
6 – Bulk Electrical Earthworks	May 2027	February 2028

2. ENVIRONMENTAL MANAGEMENT PROGRAMME

2.1. PURPOSE

An Environmental Management Programme (EMPr) is defined as “*an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented or mitigated, and that the positive benefits of the projects are enhanced.*”

The purpose of this EMPr is to provide a framework for the implementation, management, mitigation, monitoring and reporting of environmental impacts associated with the proposed development of Berth 605 and associated infrastructure within the Port of Richards Bay.

This EMPr translates the commitments, mitigation measures and management actions identified during the Environmental Impact Assessment (EIA) process into practical management requirements for implementation during the pre-construction, construction, operation and maintenance phases of the project.

The EMPr aims to:

- Ensure compliance with the conditions of the Environmental Authorisation (EA), applicable environmental legislation and any associated permits, licences and approvals.
- Avoid, minimise, rehabilitate and, where necessary, compensate for environmental impacts associated with the project.
- Provide clear environmental management requirements and responsibilities for Transnet National Ports Authority (TNPA), contractors, subcontractors, specialists and environmental personnel.
- Facilitate the implementation of specialist recommendations contained in the EIR and supporting specialist studies.
- Provide mechanisms for environmental monitoring, auditing, reporting and adaptive management.
- Ensure the implementation of the approved Biodiversity Compensation Plan and associated long-term conservation commitments.
- Ensure that climate change adaptation and resilience measures identified during the EIA process are incorporated into project planning, construction, operation and maintenance.
- Promote continual improvement in environmental performance throughout the life cycle of the project.

The EMPr has been compiled in accordance with Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (as amended) (EIA Regulations) in compliance with Section 24N of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended), with the purpose of ensuring that potential negative impacts are reduced, and positive effects are enhanced through a process of continual improvement, during the construction and operational phases of the proposed project.

To facilitate compliance with the EMPr by appointed Contractors and Sub-contractors, it is required that all on-site personnel are aware of the requirements of the EMPr as well as the prescribed penalties should a non-conformance be identified during the construction and operational activities.

Further to the above, appointed Contractors and Sub-contractors will also be required to comply with all relevant legislation and standards. An electronic copy of the EMP must always be available at the site and made available to officials on request.

This document describes the minimum requirements for environmental management to which Contractors must comply. This document must be read in conjunction with the Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP), Contractor Environmental and Sustainability Specification Guidelines and Construction Environmental Management Standard Operating Procedure, Standard Operating Procedure Environmental Performance Reporting and Environmental Sustainability Framework.

The information contained in this document pertains to the Berth 605 and associated infrastructure (the project site), only.

This document further details the proposed mitigation measures put forward by the various specialist assessments commissioned by TNPA to inform the project.

The following specialist input has been used to inform this report:

Table 2-1 – Specialist Studies

Assessment	Name of Specialist	Company
Terrestrial Biodiversity Assessment including animal and plant species theme	Sandhya Moodley/Rudolph Greffrath	WSP
Biodiversity Compensation Plan	Rudolph Greffrath/Brent Baxter	WSP
Avifaunal Assessment	David Allan	David Allan
Freshwater Assessment	Nqobile Lushozi	SASS Environmental
Baseline Estuarine and Marine Ecology Assessment	Brent Newman	CSIR
Sediment and Soil Quality	Brent Newman	CSIR
Heritage Impact Assessment	Gavin Anderson	Umlando Consulting
Marine Heritage Impact Assessment	Vanessa Maitland	Maritime Archaeology
Desktop Palaeontology Impact Assessment	Marion Bamford	Marion Bamford
Visual Compliance Statement	Sanja Erwee	SASS Environmental
Social Impact Assessment	Tumelo Mathulwe/Steven Horak	WSP
Economic Assessment	Tinotenda Makoni	Urban Econ
Climate Change Impact Assessment	Thando Mosia/ Verushka Singh	WSP
Noise Compliance Statement	Kirsten Collett/Jarred Lodder	WSP

Assessment	Name of Specialist	Company
Dredging and Dredge Disposal Assessment	Roy Van Ballegooyen	WSP
Wave Climate and Shoreline Change Assessment	Roy Van Ballegooyen	WSP

2.2. EMPr OBJECTIVES

The scope of this EMPr encompasses all project-related activities associated with the development of Berth 605 and associated infrastructure within the Port of Richards Bay, including pre-construction, construction, operation, maintenance and, where applicable, decommissioning activities. The EMPr applies to all personnel involved in the project, including TNPA, contractors, subcontractors, service providers, environmental specialists and visitors entering the project site.

The EMPr has the following objectives:

- Identify mitigation measures and environmental specifications which are required to be implemented for the construction, operational and maintenance phases of the proposed project in order to manage and minimise the extent of potential environmental impacts associated with the proposed project.
- Ensure that all the phases of the proposed project do not result in undue or reasonably avoidable adverse environmental impacts and ensure that any potential environmental benefits are enhanced.
- Identify entities responsible for the implementation of the measures and outline functions and responsibilities.
- Create management structures that address the concerns and complaints of Interested and Affected Parties (I&APs) with regards to the proposed project.
- Propose mechanisms and frequency for monitoring compliance and preventing long-term or permanent environmental degradation.
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment.
- Train on-site personnel with regard to their environmental obligations.
- Facilitate appropriate and proactive responses to unforeseen events or changes in project implementation that were not considered in the S&EIR process.
- Implement the Biodiversity Compensation Plan and associated conservation commitments.
- Ensure compliance with all permits and licence conditions applicable to the project.
- Implement climate adaptation and resilience measures identified through the EIA process.
- Maintain environmental monitoring programmes to verify the effectiveness of mitigation measures.
- Apply adaptive management where monitoring identifies unforeseen or unacceptable environmental impacts.

2.3. ENVIRONMENTAL OBJECTIVES AND TARGETS

This EMPr forms part of the environmental documentation for the Berth 605 Project and must be implemented in conjunction with the Environmental Authorisation (EA), the Environmental Impact

Report (EIR), specialist studies, permit conditions, licence requirements and any other applicable environmental approvals obtained for the project.

The EMPr is binding on TNPA, its contractors, subcontractors, suppliers, consultants, service providers and all personnel undertaking activities associated with the project. Compliance with the requirements of this EMPr shall be a contractual obligation and shall form part of all relevant contracts and appointment documents.

The provisions of this EMPr do not replace any obligations imposed by applicable legislation, standards, permits, licences or authorisations. Where a conflict exists between this EMPr and any legal requirement or permit condition, the more stringent requirement shall apply.

The EMPr shall be implemented throughout all phases of the project, including pre-construction, construction, operation, maintenance and, where applicable, decommissioning activities. The document shall be readily available on site and all project personnel shall be made aware of the environmental requirements applicable to their activities.

The EMPr is a living management document and may be revised where required to reflect amendments to the project, changes to legal requirements, updated specialist recommendations, adaptive management measures, approval conditions or environmental monitoring findings. Any amendments shall be undertaken in accordance with the requirements of the relevant environmental legislation and approval conditions.

To facilitate compliance to the EMPr, the project proponent (i.e. TNPA) must comply with all relevant legislation and standards and make all personnel aware of the requirements of the EMPr, as well as the prescribed penalties should a non-conformance be identified during the different phases of the proposed project.

It is recommended that environmental objectives (as outlined in this document) be emphasised as minimum requirements. Objectives include:

- Encourage good management practices through planning and commitment to environmental issues; and provide rational and practical environmental guidelines to:
 - Minimise disturbance of the natural environment.
 - Minimise fugitive emissions.
 - Minimise the impact of added traffic on the area.
 - Ensure surface and groundwater resource protection.
 - Prevent or minimise all forms of pollution.
 - Protect indigenous flora and fauna (applicable to laydown area).
 - Prevent soil erosion (applicable to laydown area).
 - Promote sustainable use of resources.
 - Adopt the best practical means available to prevent or minimise adverse environmental impacts.
 - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment.
 - Promote the reduction, reuse, recycling and recovery of waste.
 - Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste.
- Describe all monitoring procedures required to identify impacts on the environment.
- Define how the management of the environment is reported and performance evaluated.

- Train on-site personnel on their environmental obligations.

Implement and comply with the requirements of the Biodiversity Compensation Plan, environmental monitoring programmes, climate resilience measures, conservation servitude requirements, rehabilitation commitments and specialist monitoring requirements forms part of the implementation obligations of this EMPr and shall be maintained for the duration specified in the relevant approved management plans and authorisations.

2.4. STRUCTURE OF THE EMPR

For the purposes of demonstrating legal compliance, **Table 2-2** cross-references the sections within the EMPr with the requirements as per Appendix 4 of the EIA Regulations.

Table 2-2 – Legislation Requirements as detailed in Appendix 4 of the EIA Regulations

Section	Legislated Requirements as detailed in Appendix 4 of GNR 326	Relevant Report Section
(a)	details of-	
	(i) the EAP who prepared the EMPr; and	Section 2.2
	(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 2.2 Appendix A
(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 3
(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 any areas that should be avoided, including buffers;	Section 3.1 Section 4
(d)	A description of the 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-	Section 4 Section 7 Section 8
	(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;	
(f)	a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to -	Section 7 Section 8
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	

Section	Legislated Requirements as detailed in Appendix 4 of GNR 326	Relevant Report Section
	(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	
(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6.3 Section 7 Section 8
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6.3
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6.1 Section 7
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 7 Section 8
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 7 Section 8
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations	Section 6.3
(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; and	Section 6.2
(n)	any specific information that may be required by the competent authority	N/A

2.5. DETAILS OF THE EAP

WSP has been appointed Environmental Assessment Practitioner (EAP) as the . Details of the EAP who signed off this EMPr are provided in **Table 2-3**.

Table 2-3 – Details of the EAP

EAP	WSP Group Africa (Pty) Ltd
Contact Person:	Patricia Nathaniel
Physical Address:	WSP Group Africa (Pty) Ltd 1st Floor, Pharos House, 70 Buckingham Terrace, Westville 3629

EAP	WSP Group Africa (Pty) Ltd
	South Africa
Telephone:	011 361 1398
Email:	patricia.nathaniel@wsp.com
EAP Qualifications and Registrations:	BSc (Geography) BSc (Hons) (Geography and Environmental Management)
EAPASA Registration No.:	EAPASA (2020/1120)

2.6. STATEMENT OF INDEPENDENCE

Neither WSP nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

2.7. TRANSNET'S ENVIRONMENTAL REQUIREMENTS

Transnet has developed Contractor Environmental and Sustainable Specifications that highlight (Revised, 2023) Transnet's management procedures and administrative requirements in **Table 2-4**. The specifications will be issued to the contractor, who shall be required to comply with them as outlined.

Table 2-4 TNPA management procedures and administrative requirements

Management Procedure / Document	Requirement
Tender Documents	<ul style="list-style-type: none"> Transnet Integrated Management System Policy Statement The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP) The Contractor Environmental & Sustainability Specification Guideline The Project Environmental Specification.
	<ul style="list-style-type: none"> Standard Operating Procedure Environmental Performance Reporting and Environmental Sustainability Framework.
Project Environmental Specification (PES)	<p>The intention of the PES is to amalgamate all the relevant compliance conditions into a single document incorporating:</p> <ul style="list-style-type: none"> All relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies. Relevant conditions of the EA and/or other applicable environmental permit(s) and licence(s). The approved EMP requirements. Transnet Integrated Management System Policy Statement The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP)

Management Procedure / Document	Requirement
	<ul style="list-style-type: none"> ■ The Contractor Environmental & Sustainability Specification Guideline ■ The Project Environmental Specification. ■ Standard Operating Procedure Environmental Performance Reporting and Environmental Sustainability Framework.
	The PES may be compiled to prescribe additional environmental management measures over and above the measures stipulated in the Minimum Environmental Requirements for Construction (MERC).

2.7.1. ROLES AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key management measures/procedures are executed.

TNPA will be responsible for the overall control of the project site during all project phases. TNPA's responsibilities will include the following:

- Appointing a competent Environmental Control Officer (ECO) as specified by the DFFE during construction.
- Being fully familiar with the EIR, Environmental Authorisation (EA) conditions and the EMPr.
- Applying for an amendment of the EA from the DFFE as and when required in line with the prevailing legislation.
- The overall implementation of the EMPr.
- Ensuring compliance to the EMPr by all required parties and imposing penalties for non-compliance where relevant.
- Implementing corrective and preventive actions, where required.
- Ensuring that any other necessary permits or licences are obtained and complied with.
- Preventing pollution and actions that will harm or may cause harm to the environment.
- Notifying the DFFE prior to commencement of the various project phases, as and when necessary.

The specific roles and responsibilities for the EMPr implementation are detailed in **Table 2-5**.

Table 2-5 – Roles and Responsibilities

Designation	Roles and Responsibilities
DFFE (Competent Authority)	<ul style="list-style-type: none"> ■ Is the designated authority responsible for approving this EMPr and has overall responsibility for ensuring that TNPA complies with this EMPr, and any conditions listed in the EA. ■ Shall also be responsible for approving any significant amendments that may be required to the EMPr. ■ Ad hoc site inspections may be carried out to check compliance with the EMPr.
Project Applicant - TNPA	<ul style="list-style-type: none"> ■ Ensure that TNPA and the relevant contractor/s are aware of all specifications, legal constraints pertaining to the project, specifically regarding the environment. ■ Ensure that all stipulations within the EMPr and conditions of the environmental authorisation are communicated and adhered to by TNPA and its contractor(s).

Designation	Roles and Responsibilities
	<ul style="list-style-type: none"> ■ Monitor the implementation of the EMPr and conditions of the environmental authorisation throughout the project through site inspections and meetings. The site meeting minutes will document this. ■ Be fully conversant with the EIA for the project, the conditions of the EA, the EMPr and all relevant environmental legislation. ■ Approve method statements in conjunction with the ECO. ■ Provide support to the ECO. ■ Be fully conversant with all relevant environmental legislation and ensure compliance thereof. ■ Have overall responsibility for the implementation of the EMPr and conditions of the EA ■ Ensure that audits are conducted to ensure compliance with the EMPr and conditions of the environmental authorisation. ■ Liaise with the Project Manager or his delegate, the EO and others on matters concerning the environment ■ Prevent actions that will harm or may cause harm to the environment and take steps to prevent pollution and unnecessary degradation on site. ■ Confine activities to project's demarcated areas.
Project Manager (TNPA):	<ul style="list-style-type: none"> ■ Takes overall accountability for the project, including ensuring that all environmental specifications are implemented by all relevant stakeholders. ■ The specific tasks during construction will include: <ul style="list-style-type: none"> • Appointment of the Transnet Environmental Resource/s. • Certifying site access to the Contractor. • Giving instructions to the Contractor on recommendation from the Transnet Environmental Resource/s (e.g. defects, non-conformances, etc.). • Certifying site closure to the Contractor.
Project Environmental Resource (TNPA)	<ul style="list-style-type: none"> ■ The Transnet Project Environmental Resource (PER) will ensure that the Transnet SOPs and associated specifications or requirements are complied with. The Transnet PER will report functionally to the relevant PM. ■ The specific tasks will include: <ul style="list-style-type: none"> • Preparation of the PES. • Tender evaluation, development of environmental criteria and adjudication thereof. • Liaison with the relevant environmental Competent Authorities. • Review and approve site layout plan, including any subsequent revisions thereof. • Environmental Induction of Contractor's staff. • Generate an inspection checklist prior to construction commencement. • Review and sign off Method Statements prepared by the Contractor. • Prepare environmental monitoring protocols/checklists to be used during Construction. • Prepare monthly conformance audit reports, including sign-off on Monthly Inspection Reports. • Conduct monthly observations & inspections of all workplaces based on the approved inspection checklist. • Audit conformance to Method Statements. • Monitor the Contractor's compliance with the EMPr, EA and any other environmental requirements relevant to the site. • Develop an Audit Finding and Close out Register that documents all audit findings, close out actions and the time frame allowed for in order to close the finding/s.

Designation	Roles and Responsibilities
	<ul style="list-style-type: none"> • Ensure that all environmental monitoring programmes (sampling, measuring, recording, etc., when specified) are carried out according to protocols and schedules. • Measurement of completed work (e.g., areas topsoiled, re-vegetated, stabilised, etc.). • Attendance at scheduled SHE meetings, as and when required, and project coordination meetings. • Ensure that site documentation (permits, licenses, EA, EMP, SOP-CEM, method statements, audit reports, waste disposal slips, etc.) related to environmental management is maintained on the relevant Document Control System. • Inspect and report on environmental incidents and check corrective action. • Keep a photographic record of all environmental incidents.
Construction Manager (CM) (TNPA/WSP)	<ul style="list-style-type: none"> ■ The CM has overall responsibility for environmental management on site and reports to the TNPA PM. The CM is supported by the TNPA PER. ■ The specific tasks during the construction stage will include: <ul style="list-style-type: none"> • Reviewing the monthly reports compiled by the Transnet PER. • Approving method statements prepared by the Contractor. • Communicating directly with the Contractor on environmental issues observed on-site. • Escalating any relevant environmental matters to the Transnet PM.
Contractor	<ul style="list-style-type: none"> ■ The Contractor shall comply with the requirements of, and abide by the TNPA PM's instructions regarding the implementation of, this EMP. ■ The Contractor must confirm that they will conform to the requirements of the Transnet SOP and any other documents provided to them by Transnet during the tender.
Environmental Officer (EO) (Contractor)	<p>The Contractor's EO is responsible for managing the day-to-day on-site implementation of the TNPA SOP and project environmental specifications. Additionally, the EO is responsible for the compilation of weekly/monthly environmental monitoring reports during construction, as required. In addition, the EO must act as liaison and advisor on all environmental and related issues, seek advice from the ECO and PER when necessary, and ensure that any complaints received from I&APs are duly processed and addressed and that conflicts are resolved in an acceptable manner.</p> <p>The EO's responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> ■ Developing an appropriate environmental file, as per the TNPA SOP requirements, for approval by the Project Manager in conjunction with the ECO prior to site access, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site). ■ Monitoring environmental specifications on site and compliance with the conditions of the EA daily, environmental legislation and EMP. ■ Keeping a register of compliance / non-compliance with the environmental specifications. ■ Identifying and assessing previously unforeseen, actual, or potential impacts on the environment. ■ Conducting site inspections during the defect's liability period and bringing any environmental concerns to the attention of the Contractor. ■ Advising the Contractor on the rectification of any pollution, contamination or damage to the site, rights of way and adjacent land. ■ Attending site meetings (scheduled and ad hoc).

Designation	Roles and Responsibilities
	<ul style="list-style-type: none"> Presenting the environmental awareness training course to all staff, Contractors and Subcontractors, and monitoring the environmental awareness training for all new personnel on-site, as undertaken by the Contractor. Ensuring that a copy of the EA and the latest version of the EMPr are always available on site and maintaining a records-keeping system of all compliance and environmental documentation. Ensuring that the Contractor is made aware of all applicable changes to the EMPr that are approved by the DFFE. Assisting the Contractor in drafting environmental method statements and/or the Environmental Policy. Undertaking monthly environmental monitoring to ensure the Contractor's activities do not impact the receiving environment. Such monitoring shall include dust, noise, and water monitoring etc; and Maintaining the following on-site: <ul style="list-style-type: none"> A monthly site diary. A non-conformance register. A public complaints register. A register of audits. Records of all communication received about compliance actions, etc.
Competent ECO	<p>TNPA must appoint a suitably qualified ECO to monitor the project's compliance with the EMPr and conditions of the EA monthly during construction. During the operational phase, environmental monitoring may be undertaken as specified by the DFFE. Proof of ECO appointment must be maintained on-site.</p> <p>Responsibilities of the ECO include:</p> <ul style="list-style-type: none"> Be fully conversant with the EIR, the conditions of EA and the EMPr. Be fully conversant with all relevant environmental legislation and ensure compliance thereof. Approve method statements. Remain employed until the completion of the construction activities. Report to the Project Manager, including all findings identified on site, etc. <p>In addition, the ECO will:</p> <ul style="list-style-type: none"> Undertake monthly inspections of the site and surrounding areas in order to audit compliance with the EMPr, relevance permits and licenses and conditions of the EA during construction. Take appropriate action if the specifications contained in the EMPr and conditions of the EA are not followed. Monitor and verify that environmental impacts are kept to a minimum, as far as possible. Ensure that activities on site comply with all relevant environmental legislation.
External Auditor	<ul style="list-style-type: none"> Auditors must be independent, qualified EAPs, possessing no conflicting business or personal interests. Audits must occur at intervals specified in the EA. If none are specified, they cannot exceed 5-year intervals. The process involves site inspections, employee interviews, and reviews of documentation to determine if the project adheres to the approved EMP and EAs.
Staff, Service Providers, Visitors	<ul style="list-style-type: none"> Complying with the conditions of the EA and EMPr. Preventing pollution and actions that will harm or may cause harm to the environment.

Designation	Roles and Responsibilities
	<ul style="list-style-type: none"> Adhering to TNPA Health, Safety and Environmental Policies and Procedures.

2.7.2. TRAINING AND ENVIRONMENTAL AWARENESS

An Environmental Awareness Programme is considered a necessary part of the EMPr for the proposed project. Training of the appropriate personnel will help ensure that all environmental regulations and requirements are followed, which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

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

See more details in **Section 4.1**.

2.7.3. MONITORING

Personnel indicated in **Table 2-5** are responsible for monitoring activities indicated in the table below. See details on the monitoring programme for the proposed project in **Section 4.2**.

Table 2-6 - Details on Environmental Inspections/Audits

Place	Inspector/Auditor	Inspected Party/ Auditee	Inspection/audit frequency
Construction Site	Contractor's EO	Contractor	Daily/Weekly Inspection
Project (including all construction sites)	TNPA PER	Contractor	Monthly Inspection
Project (as defined in the EA)	ECO	TNPA (represented by TNPA Environmental Resource)	As stipulated in the EA
Project and related project authorisations, permits and EMPr	External Auditor	TNPA	As stipulated in the EA or 5-year intervals if not stipulated

2.7.4. CHECKING AND CORRECTIVE ACTION

The TNPA PER shall provide the Contractor with the procedure to follow in managing environmental non-conformances during pre-site access governance. Environmental Non-Conformances shall be handled as per the terms and conditions of the Contract. The Contractor shall follow the procedure provided to him by the TNPA PER and maintain the required records thereof.

The TNPA Project Manager shall ensure that all non-conformances are appropriately closed out within the timeframe specified in the Non-Conformance Report. Any environmental non-conformance will be dealt with similarly to a Defect as defined in the Contract. A defect is due to non-compliance with the Works Information, and it is the responsibility of the Contractor to correct the defect in order to ensure that the work takes place in accordance with the Works Information.

Similarly, non-conformance/non-compliance with any other permit or licence will be regarded as a non-conformance with the Works Information. The Contractor is responsible for rectifying any defect (non-conformance) as defined above promptly.

The TNPA PER shall also undertake such inspections on a monthly basis. If such monthly inspections indicate that any part of the Contractor's work is non-conformant with the environmental requirements, the TNPA PER shall advise the TNPA PM to issue a Defects Notification to the Contractor accordingly. The Contractor shall correct the non-conformance (defect) within the timeframes specified in the report and notification and submit proof of such correction to the TNPA PER.

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

See more details in **Section 4.3**.

3. GOVERNANCE FRAMEWORK

3.1. NATIONAL LEGAL AND REGULATORY FRAMEWORK

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions.

The legislative and policy framework presented in this section provides the basis for environmental management and compliance throughout the project lifecycle. The requirements of the applicable legislation, environmental authorisations, licences, permits and specialist management plans must be incorporated into project planning, construction (including monitoring), operation and maintenance. Compliance with all applicable statutory requirements shall be monitored and documented throughout the duration of the project.

The applicable legislation and policies are shown in **Table 3-1**.

Table 3-1 – Applicable National Legislation

Legislation	Description of Legislation and Applicability
The Constitution of South Africa (No. 108 of 1996)	<p>The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.</p> <p>Applicability:</p> <p>This EIA process was undertaken to identify and determine the potential impacts associated with the proposed Berth 605 project. The recommended mitigation measures will aim to adequately address the potential impacts and are managed to acceptable levels to support the rights as enshrined in the Constitution.</p>
National Environmental Management Act (No. 107 of 1998) (NEMA)	<p>In terms of Section 24(2) of the NEMA, the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3), as amended, listing activities that may not commence prior to authorisation.</p> <p>The regulations outlining the procedures required for authorisation are published in the EIA Regulations. Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.</p> <p>Applicability:</p> <p>WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A S&EIR process must be followed. The listed activities were confirmed during the Scoping Phase.</p>

Legislation	Description of Legislation and Applicability
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)	<p>The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) was promulgated in June 2004 within the framework of the NEMA to provide for the management and conservation of national biodiversity. The NEM:BA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEM:BA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI).</p> <p>SANBI was established by the NEM:BA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems.</p> <p>CBAs are areas of high biodiversity value which are usually at risk of being lost and usually identified as important in meeting biodiversity targets, except for Critically Endangered Ecosystems or Critical Linkages. CBAs in the Province can be divided into two sub-categories:</p> <p>Irreplaceable (parts of the site are within this sub-category), and</p> <p>Optimal (northern parts of the site are within this sub-category).</p> <p>The Threatened or Protected Species Regulations and lists (2007 & 2017 (marine)), Alien and Invasive Species Regulations and lists (2020) published under the NEM:BA will be applicable if there are any protected species to be removed as part of the project.</p> <p>Applicability:</p> <p>According to the DFFE Screening Report and confirmed in the Terrestrial Biodiversity Assessment, the development falls within an irreplaceable CBA. This is defined as areas that are considered critical for meeting biodiversity targets and thresholds, and which requires to ensue persistence of viable populations of species and functional ecosystems.</p> <p>In terms of flora, the NEM: BA as of 2022, no longer includes mangrove forests on the Revised National List of Ecosystems that are threatened and in need of protection however individual species are still protected under the National Forest Act.</p> <p>In terms of fauna, there were two Species of Conservation Concern (SCC) identified by the specialist that could be likely to occur. Regarding fauna, the African clawless otter was observed on site and the associated conservation status is near threatened. The vulnerable Samango monkey was also present on site.</p> <p>Permits for removal or destruction of nationally protected plant species will be applied for prior to the construction phase.</p> <p><u>In accordance with the Biodiversity Compensation Plan developed for the project, residual biodiversity impacts associated with the loss of terrestrial, estuarine and shoreline habitat will be addressed through biodiversity compensation measures. The designated compensation area will be protected through an appropriate legal mechanism, including the registration of a conservation servitude, and managed in accordance with the approved Biodiversity Compensation Plan. Long-term ecological monitoring, rehabilitation and alien invasive species control shall form part of the compensation commitments.</u></p>

Legislation	Description of Legislation and Applicability
<p>The National Forests Act (No. 84 of 1998)</p>	<p>1The purposes of this Act are to</p> <ul style="list-style-type: none"> - (a) promote the sustainable management and development of forests for the benefit of all; (b) create the conditions necessary to restructure forestry in State forests; (c) provide special measures for the protection of certain forests and trees: (d) promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes: and (e) promote community forestry; promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination. <p>In the Berth 605 Project footprint, a narrow band of white and black mangroves fringe the small tidally influenced pool inland of the Assembly Basin, while there are scattered mangrove trees in the Assembly Basin. Mostert (2014) considered the ecosystem functionality of mangroves fringing the small tidally influenced pool to be very high.</p> <p>The National Forests Act, 1998 (Act 84 of 1998), Section 3 states that “...natural forests may not be destroyed save in exceptional circumstances where, in the opinion of the Minister, a proposed new land use is preferable in terms of its economic, social or environmental benefits”. Section 7 of the Act prohibits the cutting, damaging, disturbance, destruction and removal of any indigenous living or dead protected tree in a forest without a licence. Mangroves are protected according to the Act. The removal of mangroves that fringe the tidally influenced pool inland of the Assembly Basin will thus need to be motivated to the Minister, and licence obtained. A case of “exceptional circumstances” for their removal would be the construction of Berth 605 in the 600 Berth Basin to enhance the economy in northern KwaZulu-Natal and South Africa.</p> <p>The NEM: BA no longer considers mangrove forests as ecosystems that need to be protected, however individual black and red mangrove tree species are still included on the National Forest Act’s Annual List of Tree Species which are protected under 12 of the Act.</p> <p>Removal of these trees will require permits to be granted by the DFFE prior to construction.</p> <p><u>Any permit conditions associated with the removal, relocation or management of protected mangrove species must be incorporated into the project implementation programme and monitored through the environmental management system.</u></p>
<p>The National Heritage Resources Act (No. 25 of 1999) (NHRA)</p>	<p>The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA) and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development.</p> <p>Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally:</p>

Legislation	Description of Legislation and Applicability
	<p>Section– 35 (4) - No person may, without a permit issued by the responsible heritage resources authority-</p> <p>destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.</p> <p>destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite.</p> <p>Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-</p> <p>any development or other activity which will change the character of a site— (i) exceeding 5 000 m2 in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.</p> <p>In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed project, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668).</p> <p>Applicability:</p> <p>The proposed area for the Berth 605 and associated structures and infrastructure exceeds 5000 m2 therefore triggers the requirement for a HIA to be undertaken. In addition, considering the sensitivity of the site from a marine archaeological perspective, the project has been subjected to a Terrestrial and Marine Archaeological Impact Assessment.</p>
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA)	<p>A list of 'Category A', and 'Category B' and subsequently 'Category C' waste management activities were first published, in GN 718 of 3 July 2009. These were amended, with the latest amendment being GN 1094 at the time of submission of this application.</p> <p>Category A and B activities require a Waste Management Licence in terms of section 20(b) of NEMWA, whereas Category C activities require that the person conducting these activities complies with the relevant requirements or standards as stated in GN. R.921, as amended.</p> <p>A number of regulations and standards regulating waste management have been published under NEMWA and updated to Government Gazette 46602 dated 24 June 2022 including:</p> <p>List of waste management activities that have, or are likely to have, a detrimental effect on the environment, 2013 (as amended)</p> <p>National Waste Management Strategy, 2020</p> <p>Waste Classification & Management Regulations, 2013</p> <p>National Norms & Standards for the Assessment of Waste for Landfill Disposal, 2013</p>

Legislation	Description of Legislation and Applicability
	<p>National Norms & Standards for Disposal of Waste to Landfill, 2013</p> <p>National Norms and Standards for the Remediation of Contaminated Land and Soil Quality, 2014</p> <p>Applicability:</p> <p>Based on the details of the project provided by TNPA to date, there are no applicable waste related activities as the dredged material will be disposed of at an existing registered offshore disposal site. The temporary storage of excavated materials may require a registration under the Norms and Standards and will be applied for separately.</p>
<p>National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA)</p>	<p>NEM:AQA provides for the protection of the environment by regulating air quality in order to prevent air pollution.</p> <p>Sections 21, 22, 22A - Listing of activities in Atmospheric Emission Licensing.</p> <p>Sections 23-25 – Controlled emitters</p> <p>Section 32 – Control of Dust</p> <p>Section 34 – Control of Noise</p> <p>Section 35 – Control of offensive odours</p> <p>Several regulations and standards regulating air quality have been published under NEMAQA. including:</p> <p>National Ambient Air Quality Standards, 2009</p> <p>National Ambient Air Quality Standard for Particulate Matter of Aerodynamic Diameter less than 2.5-micron metre (PM2.5), 2012</p> <p>Declaration of a Small Boiler as a Controlled Emitter and Establishment of Emission Standards, 2013</p> <p>National Dust Control Regulations, 2013</p> <p>Listed Activities and Associated Minimum Emission Standards 2013 (amended)</p> <p>Regulations regarding Air Dispersion Modelling, 2014 National Atmospheric Emission Reporting Regulations, 2015</p> <p>National Greenhouse Gas Emissions Reporting Regulations, 2016 (amended)</p> <p>Declaration of greenhouse gases as priority air pollutants, 2017</p> <p>National Pollution Prevention Plans Regulations, 2017 (amended) (including the Regulations prescribing the format of the Atmospheric Impact Report (2013).</p> <p>Applicability:</p> <p>The Berth 605 project does not trigger the requirement for an Air Emissions License (AEL) however the above-mentioned sections of the NEM:AQA and the associated regulations have been considered during the EIA process. Short term impacts to the air quality during construction and the Greenhouse Gas Emissions for the project have been assessed as part of the EIA process.</p>
<p>National Protected Area Expansion Strategy, 2010</p>	<p>The National Protected Area Expansion Strategy 2010 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases</p>

Legislation	Description of Legislation and Applicability
	<p>only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2010).</p> <p>According to the NPAES (2016) dataset, the project area falls within a Priority Focus Area, which is of high importance for biodiversity because it is considered a high priority for protected area expansion.</p>
The National Water Act (No. 36 of 1998) (NWA)	<p>The purpose of the National Water Act (No. 36 of 1998) (NWA) is to provide a framework for the equitable allocation and sustainable management of water resources. Both surface and groundwater sources are national resources, which cannot be owned by any individual, and rights to which are not automatically coupled to land rights, but for which prospective users must apply for authorisation and register as users. The NWA also provides for measures to prevent, control and remedy the pollution of surface and groundwater sources.</p> <p>The Act aims to regulate the use of water and activities (as defined in Part 4, Section 21), which may impact on water resources through the categorisation of 'listed water uses.' Defined water-use activities require the approval of DWS in the form of a General Authorisation (GA) or Water Use Licence (WUL) authorisation.</p> <p>Applicability:</p> <p><u>Based on the freshwater specialist assessment, freshwater wetlands occur within the wider study area but outside the direct project footprint. A General Authorisation (GA) is applicable and was granted by the DWS in September 2026. Construction and operational activities must ensure protection of surrounding freshwater ecosystems, prevention of contamination and maintenance of surface water quality. Monitoring requirements identified through the EIA process must be implemented where applicable.</u></p>
National Ports Act (Act No. 12 of 2005)	<p>According to Regulation 11 of the National Ports Act, the main function of the Authority is to own, manage, control and administer ports to ensure their efficient and economic functioning, and in doing so the Authority must plan, provide, maintain and improve port infrastructure amongst other functions.</p> <p>Applicability:</p> <p>The TNPA provides port infrastructure and marine services at the eight commercial seaports in South Africa. It operates within a legislative and regulatory environment created by the National Ports Act 2005 (Act No. 12 of 2005). There are no permits under the National Ports Act that will be applied for as part of the environmental permitting process.</p>
The National Environmental Management: Integrated Coastal Management Act (No. 24 of 2008)	<p>The National Environmental Management: Integrated Coastal Management Act 24 of 2008 aims:</p> <ul style="list-style-type: none"> to establish a system of integrated coastal and estuarine management in the Republic, including norms, standards and policies, in order to promote the conservation of the coastal environment, and maintain the natural attributes of coastal landscapes and seascapes, and to ensure that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable; to define rights and duties in relation to coastal areas; to determine the responsibilities of organs of state in relation to coastal areas; to prohibit incineration at sea;

Legislation	Description of Legislation and Applicability
	<p>to control dumping at sea, pollution in the coastal zone, inappropriate development of the coastal environment and other adverse effects on the coastal environment;</p> <p>to give effect to South Africa's international obligations in relation to coastal matters; and</p> <p>to provide for matters connected therewith.</p> <p>Applicability:</p> <p>This Act has been considered in the Estuarine and Marine Ecology Assessment. In addition, the dredged material associated with the Berth 605 project will be disposed of at an existing approved offshore disposal site.</p>
The National Environmental Management: Integrated Coastal Management Act (No. 24 of 2008): Dumping at Sea Regulations	<p>The Dumping at Sea Regulations were published in terms of sections 83(1)(g), (h), (k) and (r) of the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) and details the application process for dumping at sea.</p> <p>Applicability:</p> <p>The project will use an existing approved offshore site for the disposal of dredged materials.</p>
Marine Living Resources Act 18 of 1998	<p>Regulates the utilization, conservation and management of marine living resources and the need to protect whole ecosystems preserve marine biodiversity and minimize marine pollution.</p> <p>Applicability:</p> <p>The Berth 605 project is located within the PoRB, the entire site is located within the EFZ therefore the impact on the estuarine and marine ecology has been investigated in the EIA process.</p>
Civil Aviation Act (No. 13 of 2009)	<p>Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by the South African Civil Aviation Authority (SACAA) as an agency of the Department of Transport (DoT). SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations. All proposed developments or activities in South Africa that potentially could affect civil aviation must thus be assessed by SACAA in terms of the Civil Aviation Regulations and South African Civil Aviation Technical Standards (SA CATS) to ensure aviation safety. Potential impacts from the piggling station must be reviewed by these authorities.</p> <p>The Obstacle Evaluation Committee (OEC) which consists of members from both the SACAA and South African Air Force (SAAF) fulfils the role of streamlining and coordinating the assessment and approvals of proposed developments or activities that have the potential to affect civil aviation, military aviation, or military areas of interest. With both being national and international priorities, the OEC is responsible for facilitating the coexistence of aviation and renewable energy development, without compromising aviation safety.</p> <p>Applicability:</p>

Legislation	Description of Legislation and Applicability
	The details of the proposed project will be provided to the SACAA who is registered on the stakeholder list.
National Road Traffic Act 93 of 1996	Provides for controlling transport of dangerous goods, hazardous substances and general road safety. Applicability: The project constitutes the development of a new road. The design of the roads will be in accordance with this Act.
<u>National Climate Change Act, 2024 (Act 22 of 2024)</u>	<u>Provides a framework for climate change response and adaptation in South Africa. Applicability: A Climate Change Impact Assessment was undertaken for the project. Climate resilience measures identified through the assessment must be incorporated into project design, construction, operation and maintenance to address risks associated with increased temperatures, extreme weather events, flooding, sea level rise and storm intensity.</u>

3.2. PROVINCIAL AND MUNICIPAL LEGAL AND REGULATORY FRAMEWORK

Table 3-2 – Provincial Plans

Applicable Plan	Description of Plan
National Estuarine Management Protocol, 2015	This document presents guidelines for the development and implementation of individual Estuarine Management Plans as required by the National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008), as amended by the National Environmental Management: Integrated Coastal Management Amendment Act (Act No. 36 of 2014) (hereafter referred to as the ICMA) and in accordance with the National Estuarine Management Protocol. The Umhlathuze & Richards Bay Estuarine Management Plan (EstMP) (2018) was compiled in accordance with the National Estuarine Management Protocol and has been considered by the relevant specialists in the various studies that have been undertaken to inform the EIA process.
KwaZulu-Natal Planning and Development Act 6 of 2008	Strategic spatial development intentions for the municipality based on the Integrated Development Plan (IDP) and Strategic Development Framework (SDF), influenced by and in alignment with adjacent municipalities.
KwaZulu-Natal Provincial Spatial Economic Development Strategy (2022)	The prioritisation of spatial economic development initiatives in the province, including strategy to ensure that investment occurs in the sectors that provide the greatest socio-economic return to investment.
Port Development Framework Plan, 2022	The National Ports Act (2005) prescribes that the National Ports Authority is to prepare and periodically update a Port Development Framework Plan for each port. This process ensures that the development plans remain

Applicable Plan	Description of Plan
	current, aligned with national policies and inclusive of changes in the ports' environment.
KZN Biodiversity Sector Plan 2016	<p>CBA's are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan – and may be terrestrial or aquatic. The primary purpose of a map of CBA's is to guide decision-making about where best to locate development. It should inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. It is the biodiversity sector's input into multi-sectoral planning and decision-making processes.</p> <p>The site, although developed and disturbed to a certain extent, is located in a CBA: Irreplaceable as defined by the KZN Biodiversity Sector Plan (2016). The impact to the CBA's has been considered by the terrestrial ecologist and EAP as part of the EIA process. It must be noted that the CBA's have not been adopted by the regional CA.</p>
Ezemvelo KZN Wildlife Strategic Plan, 2015	To ensure effective conservation, sustainable use of biodiversity, and promote ecotourism within KwaZulu-Natal in collaboration with stakeholders for the benefit of present and future generations.
National Biodiversity Offset Guideline (2023)	<p>The purpose of this guideline is to indicate when biodiversity offsets are likely to be required as mitigation by any Competent Authority (CA), to lay down basic principles for biodiversity offsetting and to guide offset practice in the environmental authorisation (EA) application context. This guideline is an implementation guideline contemplated in section 24J of the National Environmental Management Act, 1998 (NEMA). Guidelines published in terms of that section give guidance on, inter alia, the implementation, administration and institutional arrangements of the Environmental Impact Assessment Regulations, 2014 (EIA Regulations) or subsequent regulations regarding the environmental impact assessment process.</p> <p><u>The Biodiversity Compensation Plan for the Berth 605 project was developed with guidance of the principles contained within the National Biodiversity Offset Guideline (2023). The implementation, monitoring and long-term management of compensation measures must align with the objectives of the approved Biodiversity Compensation Plan.</u></p>
KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs - Provincial Norms and Standards for Climate Change and Energy Efficiency in Land Use Management (January 2020)	<p>Providing set of norms and standards that focus on climate change and energy efficiency, which are interrelated, which must be used in the assessment of land development applications in order to proactively respond to climate change. A climate change impact assessment has been undertaken by a specialist to inform the EIA process.</p> <p><u>A Climate Change Impact Assessment was undertaken for the project. The assessment identified risks associated with increased temperatures, more frequent extreme weather events, increased storm intensity, sea level rise, storm surges and extreme precipitation events. Recommended adaptation and resilience measures must be incorporated into project implementation and operation.</u></p>

Applicable Plan	Description of Plan
KwaZulu-Natal Coastal Management Programme (2019)	Developed to bring provincial coastal management in KwaZulu-Natal in line with the Integrated Coastal Management Act. The Provincial Coastal Management Programme (PCMP) sets out the objectives and requirements to fully realise integrated coastal management in KwaZulu-Natal.
KwaZulu-Natal Amafa and Research Institute Act, 2018	<p>The KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No. 05 of 2018) was established to recognise the KwaZulu-Natal Amafa and Research Institute as the provincial heritage resources authority for the KwaZulu-Natal in terms of Section 23 of the National Heritage Resources Act, 1999, and to amalgamate <i>Amafa aKwzaZulu-Natali</i> in terms of the KwaZulu-Natal Heritage Act, 2008. The aim of the of the Institute and Act is to identify, conserve, protect, manage and administer heritage resources, whilst researching and generating relevant knowledge to provide solutions within the field of heritage in the province.</p> <p>Applicability:</p> <p>The proposed area for the Berth 605 and associated structures and infrastructure exceeds 5000 m² therefore triggers the requirement for a HIA to be undertaken. In addition, considering the sensitivity of the site from a marine archaeological perspective, the project has also been subjected to a Marine Archaeological Impact Assessment. AMAFA will provide a response once the HIA is uploaded for comment.</p>
King Cetshwayo District Municipality Integrated Development Plan (IDP) 2024-2025	The objective is to promote economic growth in the District and improve the socio-economic conditions of residents, including infrastructure development and service delivery.
Umhlathuze Spatial Development Framework 2017-2022	The SDF provides strategic guidance on locations of development and land use, which feeds into strategic decisions of the local municipality. The SDF also includes the Environmental Management Framework for the municipality with specific reference to the PoRB expansion.
Umhlathuze Environmental Services Management Plan, 2024	<p>The Municipality compiled an Environmental Services Management Plan (ESMP) as broader planning tool to guide spatial development. The ESMP outlines a number of goals for Environmental Services Management. Two critical goals are:</p> <p>To define cohesive and functional spatial management units within the municipal area that needs to be managed in order to optimize the delivery of environment services.</p> <p>To develop management plans for each management unit that identify the management activities required to secure environmental services supply.</p> <p>The areas that provide environmental services to the City are spatially defined, and the following “Levels” of protection were determined:</p> <p>Nature Reserves (Level 1) Conservation Zones (Level 2) Open Space Linkage Zone (Level 3) Development Zone (Level 4)</p>

Applicable Plan	Description of Plan
	The Berth 605 project area falls within Level 4 as it is an already transformed area earmarked for development.
Umhlathuze Municipality Spatial Planning and Land Use Management By-Law, 2017	<p>The Umhlathuze Municipality Spatial Planning and Land Use Management By-Law, 2017 provides for:</p> <ul style="list-style-type: none"> ■ the establishment of the Municipal Planning Approval Authority and the Municipal Planning Appeal Authority; ■ the adoption, repeal, review, extension and amendment of the Municipality's land use scheme, ■ the regulation and management of spatial and land use planning and development, ■ the categorisation of land development applications, processes and procedures for land development applications, appeals against decisions of the Municipal Planning Approval Authority; and ■ offences, penalties and enforcement matters; and matters incidental thereto.
The City of Umhlathuze Roads and Traffic Safety By-laws, 2019	The City of Umhlathuze Roads and Traffic Safety By-laws, 2019 provide for measure for preventing minimising or managing public nuisances. In addition, it prohibits certain activities public places.

3.3. PERMITS AND AUTHORISATIONS

TNPA shall maintain a register of all environmental permits, licences, approvals and authorisations applicable to the project. The register shall identify permit conditions, compliance obligations, monitoring requirements, reporting requirements and responsible persons. The register shall be reviewed and updated throughout the construction, operational and maintenance phases of the project.

4. MANAGEMENT PROCEDURES AND ADMINISTRATIVE REQUIREMENTS

4.1. ENVIRONMENTAL AWARENESS PLAN

Legislation requires that TNPA develop an environmental awareness plan that describes the manner in which TNPA intends to inform employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

It is important to ensure that all relevant personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental degradation and harm.

To achieve effective environmental management, it is important that employees, contractors (including subcontractors) are aware of the responsibilities in terms of the relevant environmental legislation and the contents of the EMP, relevant permits and licenses and conditions of the EA.

TNPA will provide appropriate resources to facilitate social and environmental awareness training during the construction and operational phases of the project. TNPA will require that all managers associated with the project adhere to the mitigation/management measures detailed in the EMP and identify, evaluate, and minimise risks to the social, physical and biophysical environments. This will be implemented by educating employees in social and environmental matters and responsibilities relating to the performance of their assigned tasks. Furthermore, employees will be entrusted to maintain the necessary level of environmental performance for their activities. Contractors and their associated Sub-contractors will also need to demonstrate compliance to mitigation/management measures included in the EMP.

The methodology described below must be used to implement and ensure environmental and social awareness and competence.

4.1.1. INTERNAL COMMUNICATION

Internal communication of environmental issues to ensure environmental awareness will be achieved by using any combination of the following means:

- Meetings;
- Notice boards;
- Reports;
- E-mail;
- Telephone; and
- Induction training.

4.1.2. STANDARD MEETINGS

The following standard meetings will be held at specific times to ensure that environmental and social awareness, potential problems, complaints, etc., are heard and addressed proactively:

- The TNPA PER will hold an inception meeting with the Contractor's EO on site to agree on the EO's functions.

- Monthly site meetings will be held by the Contractor's team during construction. The Transnet PER will attend these meetings on request by the Contractor.
- SHE Meetings will be held by the project team (ad hoc meeting will be held as and when required).
- Communication between all personnel and Senior Management will be facilitated through the appropriate reporting lines, or by using complaint and incident forms.

4.1.3. ENVIRONMENTAL AND SOCIAL TALK TOPICS

Weekly Toolbox Talks must be compiled and distributed/shared to relevant personnel and may be displayed on appropriate notice boards or shared by whatever means established on site. As a minimum, the following topics may be considered:

- Water Quality
- Water Use and Consumption
- Air Quality, i.e. dust
- Waste Management
- Fauna and Flora (applicable to laydown area)
- Avifauna
- The marine/estuarine environment
- Emergency Procedures
- Incidents Reporting
- Management Systems
- Noise
- Speed Limits
- Health and Safety Risks
- General Environmental Awareness
- Biodiversity Compensation Plan requirements.
- Conservation servitude requirements applicable to compensation areas.
- Mangrove protection and permit conditions.
- Dredging permit conditions and dredged material disposal requirements.
- Heritage, archaeological and palaeontological chance-find procedures.
- Climate change adaptation and resilience measures applicable to the Project.
- Alien invasive species identification and control measures

4.1.4. GENERAL COMMUNICATIONS

Communication to the community, government, landowners, environmental groups, non-government organisations and other stakeholders will be communicated to ensure environmental and social awareness by means of the following:

- E-mail;
- Telephone; or
- Formal meetings.

4.1.5. TRAINING

It is important to ensure that all Personnel, Contractors and their Sub-contractors have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm. As a minimum, environmental training must include the following:

- Employees must have a basic understanding of the key environmental features of the site and the surrounding environment.
- Employees will be thoroughly familiar with the requirements of the EMPr and the environmental specifications as they apply to the project.
- Employees must undergo training for the operation and maintenance activities associated with the project and have a basic knowledge of the potential environmental impacts that could occur and how they can be minimised and mitigated.
- Awareness of any other environmental matters, which are deemed to be necessary by the Environmental Officer.
- Training must include the environment, health and safety as well as basic HIV/AIDS education.

The following facets of training form part of this Environmental and Social Awareness Plan:

- **Induction:** Induction training will also be given to visitors entering the site. Induction training will include, inter alia:
 - A discussion on the environment concept, what it comprises of and how we interact with it;
 - A description of the components and phases of the project;
 - A general account of how the facility and its associated activities can affect the environment, giving rise to what are called environmental impacts; and
 - A discussion on what staff can do in order to help prevent the negative environmental impacts from degrading the environment, i.e. environmental impact management.
- **Job-Specific Training:** Job-specific training programmes will be developed as and when required. The programs will be based on the significant environmental and social aspects/impacts that are identified during audits and site inspections. Supervisory staff will be equipped with the necessary knowledge and information to guide their employees on environmental and social aspects applicable to performing a specific task.
- **Training Records:** Training can be done either in a written or verbal format but will be in an appropriate format for the receiving audience. Persons having received training must indicate in writing that they have indeed attended a training session and have been notified in detail of the contents and requirements of the EMPr. The attendance registers must be kept on file.

Personnel working within or adjacent to biodiversity compensation areas, dredging work areas, estuarine habitats and environmentally sensitive areas shall receive task-specific environmental awareness training prior to commencing work. Refresher training shall be provided throughout the construction period where required.

4.2. MONITORING

The EO will monitor the day-to-day site activities on an ongoing basis and will produce monthly monitoring reports during construction. The ECO will undertake monthly audits, during construction, to ensure compliance with the EMPr and conditions of the EA during the construction activities and will report to the Site Manager should any non-compliance be identified or corrective action deemed necessary.

During the operational phase, TNPA will monitor and measure the key characteristics of the operations that may have a significant environmental impact through annual auditing. These audits will cover documenting information to monitor performance, applicable operational controls and conformity with the operation's environmental objectives and targets.

TNPA will ensure that all instruments and devices used for the measurement or monitoring are calibrated and appropriately operated and maintained. Calibration records must be kept on site or in close proximity to the equipment for ease of availability.

All the conditions outlined in the EMPr will be subject to required internal monitoring and external compliance monitoring.

In addition to compliance monitoring, specialist environmental monitoring programmes identified in the EIR shall be implemented where required. These programmes include dredging-related monitoring, biodiversity compensation monitoring, rehabilitation monitoring, alien invasive species monitoring, shoreline monitoring, estuarine and marine monitoring, and any additional monitoring required by permit conditions or the Environmental Authorisation. Monitoring results shall be reviewed periodically to assess the effectiveness of mitigation measures and inform adaptive management actions.

4.3. NON-CONFORMANCE AND CORRECTIVE ACTION

The auditing of the operational activities may identify non-conformances to the EMPr, and conditions of the EA. Non-conformances may also be identified through incidents, emergencies or complaints recorded. In order to correct non-conformances, the source must be determined, and corrective actions must be identified and implemented.

Monitoring exceedances, permit non-compliances and failures to implement approved mitigation measures shall be treated as environmental non-conformances and investigated in accordance with the project corrective action procedure. Appropriate corrective and preventative actions shall be implemented within agreed timeframes and recorded in the non-conformance register.

4.3.1. COMPLIANCE WITH THE EMPR AND CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION

- A copy of the EMPr and conditions of the EA will be available on site at all times for the duration of the construction and operational activities.
- All persons employed by a Contractor, or their Sub-contractors will abide by the requirements of the EMPr and conditions of the EA.
- Any members of the workforce found to be in breach of any of the specifications contained within the EMPr and conditions of the EA may be ordered by the Site Manager to leave the site. A contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMPr and conditions of the EA.
- Should a Contractor be in breach of any of the specifications contained in the EMPr and conditions of the EA, the Site Manager will, in writing, instruct the contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue.
- Should non-compliance continue, further written notification will be forwarded to the contractor responsible for the incident of non-compliance outlining the required corrective and/or remedial action, the timeframe for implementation, penalties and/or work will be suspended as specified previously. If corrective action is not undertaken within the timeframe stipulated in the contract document with the contractor, then the contractor can be replaced citing breach of contract terms and conditions.

- Departmental officials will be given access to the property referred to in the EIR and EMPr for the purpose of assessing and/or monitoring compliance with the EMPr and conditions of the environmental authorisation, at all reasonable times.

4.3.2. DUTY OF CARE

Under Section 28 of the NEMA, all personnel involved with the construction and operational activities on site will be responsible for implementing measures to prevent pollution or degradation of the environment from occurring, continuing or recurring. Failure to comply with the above conditions is a breach of the duty of care. If such harm is unavoidable, steps must be taken to minimise and rectify such pollution or degradation of the environment.

4.4. DOCUMENTATION AND REPORTING

The following documentation must be kept on site in order to record compliance with the EMPr and conditions of the EA:

- Record of complaints; and
- Record of emergencies and incidents.
- Biodiversity Compensation Plan implementation records.
- Biodiversity compensation area monitoring records.
- Alien invasive species monitoring records.
- Water quality and dredging monitoring records.
- Dredged material disposal records.
- Environmental training attendance registers.
- Specialist monitoring reports.
- Permit and authorisation compliance register.
- Heritage and palaeontological chance-find records (where applicable).
- Rehabilitation monitoring records

The contractor will be required to report on the following:

- Environmental incidents involving contractors/employees and/or the public;
- Environmental complaints and correspondence received from the public; and
- Incidents that cause harm or may cause harm to the environment.

The above records will form an integral part of the contractor's EO's reports and records thereof maintained for the duration of the project. These records will be kept with the EMPr and conditions of the EA, and will be made available for scrutiny if so, requested by the Site Manager or his delegate and the EO.

The contractor will ensure that the following information is recorded for all environmental complaints/incidents/emergencies:

- Date of complaint/incident/emergency
- Location of complaint/incident/emergency
- Nature of complaint/incident/emergency
- Causes of complaint/incident/emergency
- Party/parties responsible for causing the complaint/incident/emergency
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident/emergency

- Additional corrective or remedial action taken and/or to be taken to address and to prevent the recurrence of the complaint/incident/emergency
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented
- Copies of all correspondence received regarding complaints/incidents/emergencies.

All environmental records shall be retained for the duration of the construction phase and thereafter in accordance with TNPA document control requirements and permit conditions. Environmental monitoring data shall be stored in a manner that facilitates auditing and reporting to regulatory authorities.

4.5. PUBLIC COMPLAINTS

The Contractor and/or TNPA shall keep a Public Complaints Register on site to allow the general public to document any comments on or complaints regarding the activities of the site.

The Complaints Register must:

- Be tabled during monthly site meetings;
- Be made available to the Project Manager, the EO, the Applicant, and/or any authority at any time if requested; and
- Include a section for the documentation of the action taken to address the complaint.
- Include complaints received regarding dredging activities, environmental pollution, noise, biodiversity impacts, traffic disruptions, rehabilitation activities or compensation areas shall be specifically recorded, investigated through the Transnet Integrated Management System (TIMS) relevant procedure/s.

All complaints must be investigated, responded to, and recorded in the Complaints Register within 28 calendar days where feasible. Trends identified through the complaints register shall be reviewed during environmental inspections and audits to determine whether additional mitigation measures or corrective actions are required.

5. PROJECT-SPECIFIC ENVIRONMENTAL CONTROLS

The project-specific environmental controls have been developed using the recommendations and mitigation measures recommended in the environmental impact assessment for the project, as well as Transnet's environmental requirements.

The EMPr contains guidelines, operating procedures, rehabilitation, and pollution control requirements which will be binding to the on-site personnel working for, or on behalf of TNPA. It is essential that the EMPr be carefully studied, understood, implemented and adhered to at all times.

In instances where the method statements provided by the contractor conflict with the EMPr, such conflicts will be discussed between the Site Manager, EO, ECO and contractor and if unresolved, the EMPr will take precedence.

The EMPr identifies various actions which are undertaken throughout the construction and operational phases of the proposed project. Not every action will be required during the entire course of activities. Therefore, the actions identified in the EMPr have been given priority timeframes for proposed implementation. The columns in the structure of the EMPr have been described in **Table 5-1** below.

Table 5-1 – Structure of EMPr

Column	Description
Activity/Aspect	Highlights the various activities/aspects associated with the project that will interact with the environment.
Impact Management Outcome	The desired outcomes from effectively minimising negative impacts and/or enhancing positive impacts.
Impact Management Actions/Measures	Indicates the actions required to prevent and /or minimise the potential impacts on the environment that are associated with the project.
Indicator and Compliance Management	Items that will assist with determining compliance against management actions.
Responsibility	Indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr. Please note that the Construction Manager upon instruction from the PM will have authority to stop works if/as necessary.
Priority Timeframe	Indicates when the actions for the specific aspect must be implemented and/or monitored.

The following assumptions have been made in the development of the environmental specification in this EMPr:

- An environmental file containing the information/documentation required by this EMPr is to remain on site and to be made available at the request of the auditor or similar monitoring body; and
- For ease of reference, any person(s) employed to assist in the project, i.e. Contractors, Sub-contractor and Permanent and Temporary Staff, will be collectively referred to as 'on-site personnel'.

The tables below provide mitigation and management activities related to each project aspect and activity.

Table 5-2 – General Environmental Management: EMPr Mitigation and Management Measures

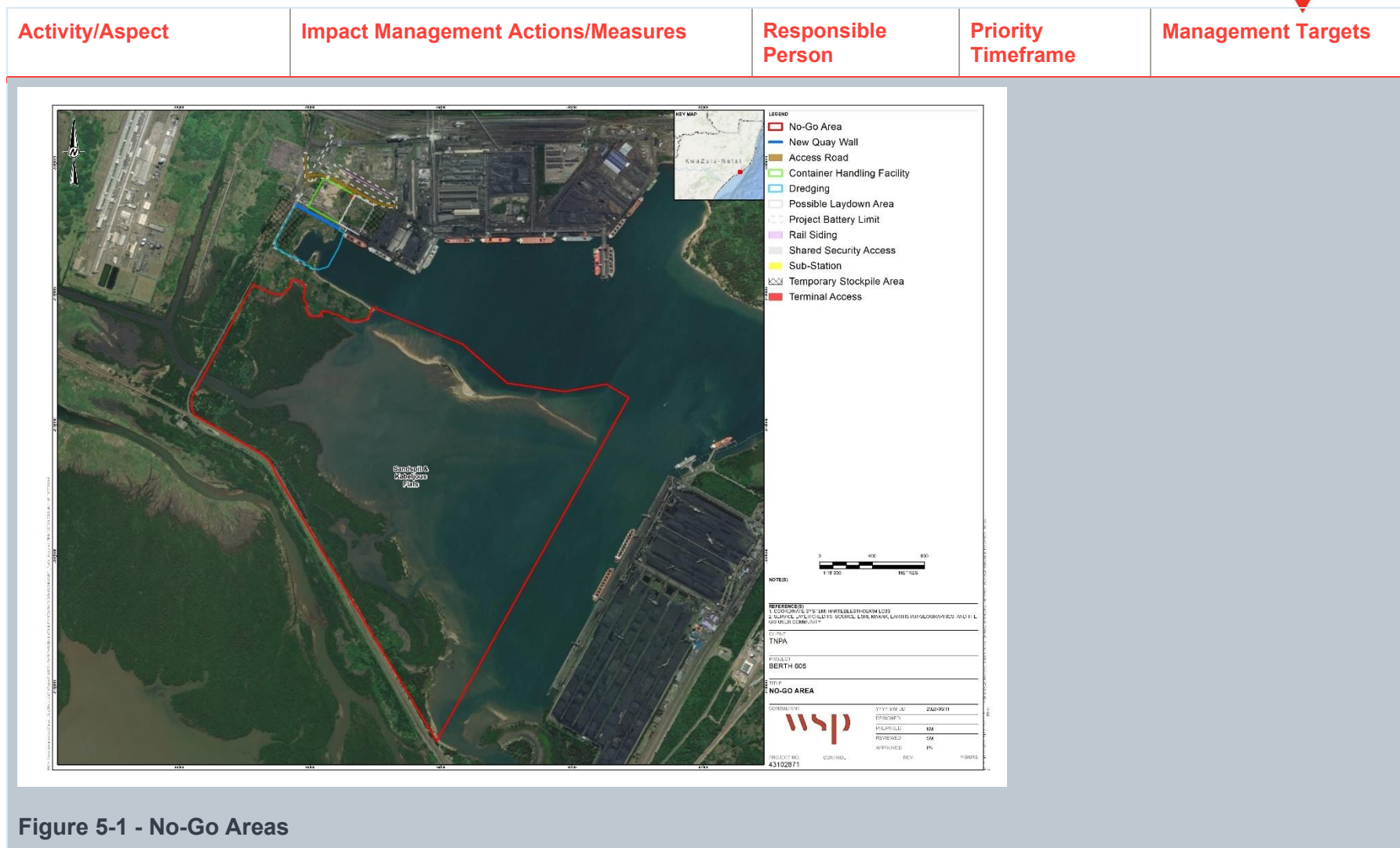
Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.1. GENERAL ENVIRONMENTAL MANAGEMENT				
Impact Management Outcome: <ul style="list-style-type: none"> To implement measures to minimise impacts on the environment during construction and operations 				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Communication records with the DFFE. Monitoring and audit reports. ECO appointment letter. Site Emergency Response Plan. Public Complaints Register. 				
Environmental Management and Monitoring	Compliance with the EMPr, conditions of the EA and other relevant permits and licenses must be undertaken in terms of Section 4.	<ul style="list-style-type: none"> TNPA Project Manager TNPA PER TNPA Construction Manager Contractor's EO ECO 	<ul style="list-style-type: none"> Construction Operation 	<ul style="list-style-type: none"> All administrative records are maintained and accessible at all times as required. The necessary administrative conditions of the EA, EMPr and Appeal Decision (if applicable) are satisfied. Compliance with all applicable legislation is ensured ahead of construction activities.
	The DFFE must be notified 14 days prior to the commencement of the construction phase.		<ul style="list-style-type: none"> Construction 	
	TNPA must appoint a suitably qualified ECO to monitor the project's compliance with the EMPr and conditions of the environmental authorisation and other relevant permits and licenses during construction			
	A complaints register in terms of Section 4.5 must be maintained.		<ul style="list-style-type: none"> Construction Operation 	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	An emergencies and incidents register must be maintained.			<ul style="list-style-type: none"> Close-out of actions on the Public Complaints Register.
	Implement the Environmental Awareness Plan outlined in Section 4.1.			

Table 5-3 – Contractor laydown area and site access: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.2. LAYDOWN AREA AND SITE ACCESS				
Impact Management Outcome: To implement measures to minimise impacts on the environment from the initiation of activities through planning, careful site access route selection and implementation of mitigation measures.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Visual inspection of the signage indicating the construction areas. Monitoring and audit reports. Induction training and register(s). Inspection records for firefighting equipment. Environmental awareness programme/toolbox talks. 				
Project initiation Activities	Appoint an EO to manage and verify compliance with the EA and EMP. Monthly inspections need to be undertaken.	<ul style="list-style-type: none"> Contractor TNPA Construction Manager Contractor's EO ECO 	<ul style="list-style-type: none"> Pre-construction Construction 	<ul style="list-style-type: none"> Close-out of actions on the Public Complaints Register Secure access protocols are always active Emergency preparedness measures consistent with Port standards for all construction work
	All personnel who will be operating within Berth 605 construction footprint must be appropriately trained including awareness of the surrounding area to inform importance of these areas and their conservation. A signed register of attendance must be kept for proof.		<ul style="list-style-type: none"> Construction 	
	Implement the Environmental Awareness Plan outlined in Section 4.1		<ul style="list-style-type: none"> Construction Operations 	
	Firefighting equipment must be securely placed and inspected monthly.		<ul style="list-style-type: none"> Construction Operations 	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	Any materials may not be stored for extended periods of time once construction has been completed and must be removed from the project area once the construction phase has been concluded.			
No – go areas	There must be no laydown of materials associated with the project, movement of vehicles and clearance of vegetation (excluding for maintenance) in any of the designated no-go areas as indicated in the figures below. The no go areas will not be physical demarcated due to its extent however it will be made available to the contractor on a map.	<ul style="list-style-type: none"> Contractor TNPA Construction Manager Contractor's EO ECO 	<ul style="list-style-type: none"> Pre-construction Construction Post-Construction 	Ensure the designated no-go areas are not encroached on by construction related activities and personnel.



Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
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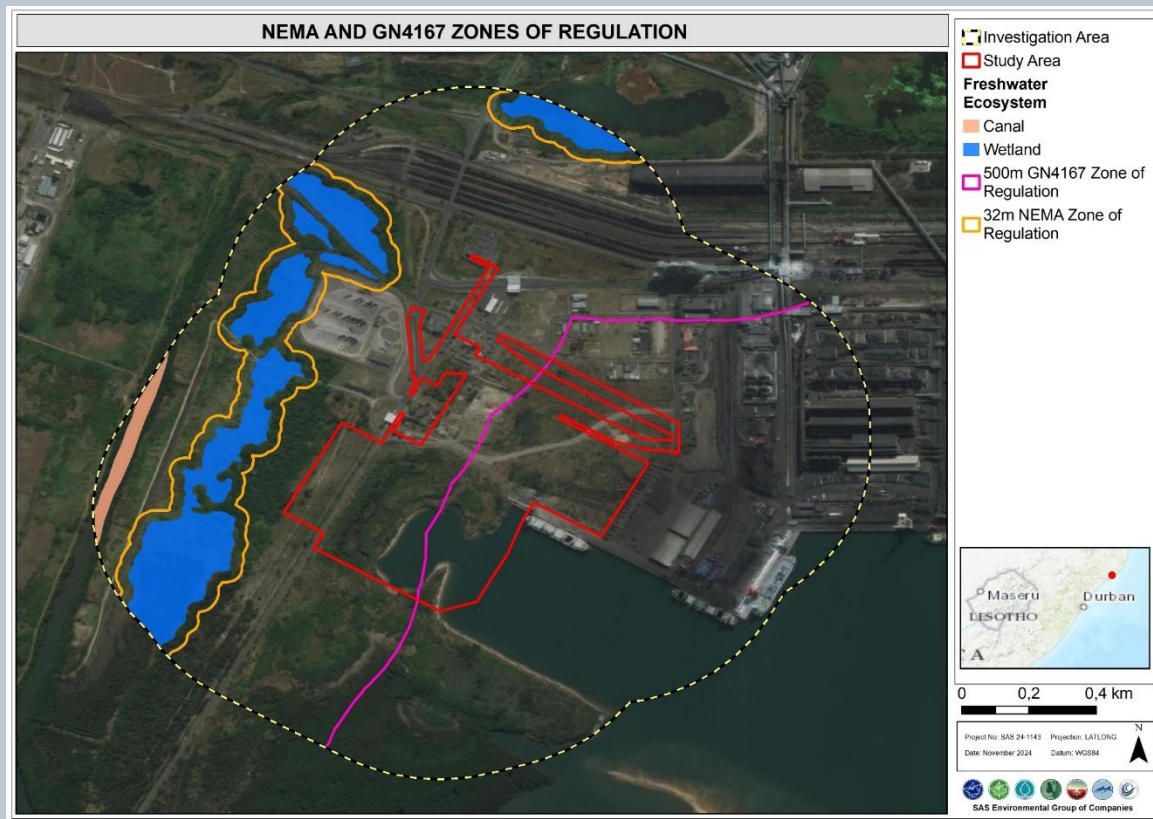


Figure 5-2 – Wetland No-Go Areas

Table 5-4 – Vehicle, Equipment and Machinery Management: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.3. VEHICLE, EQUIPMENT AND MACHINERY MANAGEMENT				
Impact Management Outcome: To implement measures to minimise impacts on the environment from poorly maintained equipment, machinery and vehicles on site.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Complaints Register. Monitoring and audit reports. Equipment, machinery and vehicle checklists. Incident classification and reporting procedure. 				
Operation of Equipment, Machinery and Vehicles	Ensure that the equipment, machinery and heavy vehicles are maintained so as to: <ul style="list-style-type: none"> Reduce the potential for spillages of oil, diesel, fuel or hydraulic fluid. Ensure roadworthiness. Reduce emissions. Evidence of such maintenance must be recorded and maintained by the TNPA H&S Department on site for verification.	<ul style="list-style-type: none"> Contractor TNPA Construction Manager Contractor's EO ECO 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> Sensitive environmental areas remain unaffected by construction-related vehicles, equipment, and site layout Close-out of actions on the Complaints Register
	The movement of vehicles into and out of the site must be managed to ensure that there is no impact on the surrounding port users. Routes will be planned as per the project's Traffic Management Plan, National Road Traffic Act, 1996 (Act 93 of 1996) and applicable South African National Standards (SANS) code requirements using existing road infrastructure.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	Management measures include ensuring that abnormal loads are moved outside of peak traffic hours, and reasonable measures are taken to ensure that public and staff safety is managed. This is to be agreed upon with the PM/Employers Agent.			
	All motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of life. Speed limits must be enforced to ensure that erosion is limited.	<ul style="list-style-type: none">■ Contractor■ Transnet Construction Manager■ Contractor's EO■ ECO	<ul style="list-style-type: none">■ Construction	
	No storage of vehicles or equipment must be allowed outside of the designated areas.			
	All vehicles and personnel must make use of the existing roads and walking paths.			
	No servicing of plant and equipment should take place on site unless an emergency. Drip trays must be utilised if emergency servicing/repairs are required. The geyser type trays must not be used unless they have a plug that prevents the tray from leaking.			
Standard vehicle requirements	All the Contractor vehicles and their service providers, such as sub-contractors that enter the PoRB from the public road network, are subject to conventional SA road laws in terms of roadworthiness.	<ul style="list-style-type: none">■ Contractor■ TNPA Construction Manager■ Contractor's EO	<ul style="list-style-type: none">■ Construction	<ul style="list-style-type: none">■ Maintenance and servicing documentation for machinery and vehicles

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	Lights, brakes, tyres, and exhausts must be in suitable working condition.			is regularly updated and accessible
	Vehicles must be licensed for the type, load or passengers being transported.			
	Vehicles may not be overloaded, unless it is an abnormal load vehicle, for which a permit is required.			
	Drivers must be licensed and not under the influence of alcohol or drugs.			

Table 5-5 – Hazardous Substances and Pollutants: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.4. HAZARDOUS SUBSTANCES AND POLLUTANTS MANAGEMENT				
Impact Management Outcome: To ensure the correct storage, handling and disposal of fuels and chemicals in order to prevent impacts to the surrounding environment.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> ■ Maintenance records. ■ Safe disposal certificates (if applicable). ■ Safety data sheets (SDS) (if applicable). ■ Public Complaints Register. ■ Chemicals management procedure (to be developed). ■ Monitoring and audit reports. Training records. ■ Photographic record of pre-construction survey. 				
Fuel and Chemical Management - General	<p>A Hazardous Substance Spill Response and Contingency Plan must be developed by the Dredging and Construction Contractor/s or if available, the TNPA SOP for Spill Response must be implemented.</p> <p>The Hazardous Substance Spill Response and Contingency Plan must identify appropriate response procedures in the event of a hazardous substance spill into the Port. The plan must provide specific responses for spills of different types of hazardous substances that may be handled.</p> <p>Hazardous substances must be stored and handled in accordance with appropriate legislation and standards, including the Hazardous Substances Act, 1973 (Act 15 of</p>	<ul style="list-style-type: none"> ■ Contractor ■ TNPA Construction Manager ■ Contractor's EO ■ ECO 	<ul style="list-style-type: none"> ■ Construction 	<ul style="list-style-type: none"> ■ All hazardous and non-hazardous materials are handled, used, and stored in a manner that prevents pollution ■ Verified records demonstrating safe response and disposal following a spill incident

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	1973) and Occupational Health and Safety Act, 1983 (Act 85 of 1993).			
	Hazardous substance spills and leaks must be reported in accordance with the Transnet SOP. The Contractor personnel to whom a spill or leak must be reported must be outlined in the Hazardous Substance Spill Response and Contingency Plan. The plan must also outline subsequent lines of reporting as deemed necessary (e.g. Transnet National Ports Authority, relevant authorities, etc.).			
	The DFFE must be notified and clean up must be conducted immediately as per Section 30 of NEMA. Reporting of the incident must be undertaken within 14 days.			
	Spill containment and clean-up kits, including floating booms, must be readily available on vessels and on land in areas where there is a risk of a hazardous substance spill or leak and must be appropriate to the type of possible spill or leak.			
	Responsible and trained personnel must be available to deal with hazardous substance spills and leaks. Training/drills must be implemented to enable personnel to respond appropriately to hazardous substance spills and leaks. Details of the major oil spill clean-up companies must be displayed in the environmental file and display board in cases of emergency.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	Appropriate methods for the disposal of cleaned up spilled substances and clean-up materials must be identified in the Hazardous Substance Spill Response and Contingency Plan – this material must not be disposed with ‘normal’ waste but rather at a licensed hazardous waste disposal site.			
	Dredging, construction, and support vessels, and related equipment and machinery must be properly maintained and regularly checked for leaks of hazardous substances.			
	Fuel tanks of small vessels should not be refilled onboard, but at a dedicated site on land or on a larger, more stable vessel.			
	The intentional disposal of hazardous substances into the Port’s marine environment or into stormwater drains and surface drainage channels is strictly prohibited. Similarly, the disposal of hazardous substances to the soil is prohibited.			
	All construction personnel must receive comprehensive environmental awareness training and must be sensitised to the negative environmental impacts of hazardous substance spills and leaks on the environment. Environmental awareness training must be ongoing through the life of the project.			
	Only trained personnel must be allowed to handle hazardous substances.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
Fuel and Chemical Management – Landside	Implement the site drainage plan that shows the positions of sewers, surface drainage channels and stormwater drain, including where the channels and drains flow into the Port's marine environment.	<ul style="list-style-type: none"> ■ TNPA PER ■ TNPA Construction Manager ■ Contractor ■ ECO 	Pre-construction	<ul style="list-style-type: none"> ■ Development and maintenance of a layout plan that includes stormwater control measures ■ No pollution due to the drainage infrastructure failures, overflows or malfunctioning.
	Routine maintenance of construction machinery, equipment and vehicles should not be performed on site. However, it is recognised that it might not be possible to easily move certain construction machinery and equipment that might require emergency repairs to a dedicated repair site. In this case, emergency repairs should be allowed on site, but the contractor and TNPA must reach an agreement in this regard.	<ul style="list-style-type: none"> ■ Contractor ■ Contractor's EO ■ ECO 	■ Construction	■ To implement an emergency repair/maintenance agreement between TNPA and the Contractor
	Construction machinery, equipment, and vehicles must be properly maintained and regularly checked for leaks of hazardous substances. No vehicles should be allowed on site if they have visible leaks, including the vehicles of suppliers.	<ul style="list-style-type: none"> ■ Contractor ■ Contractor's EO ■ ECO 	■ Construction	
	Hydraulically operated machinery should ideally use a synthetic biodegradable hydraulic oil.	<ul style="list-style-type: none"> ■ Contractor ■ Contractor's EO 	■ Construction	
	Hazardous substance storage containers must be undercover and in bunded areas, or within containment structures capable of containing	<ul style="list-style-type: none"> ■ Contractor ■ Contractor's EO 	■ Construction	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	1.2 times the combined stored fluid volume. Containers must be labelled, sealed, and stored in accordance with Safety Data Sheet requirements.	■ ECO		
	Only trained personnel must be allowed access to areas where hazardous substances are stored or used. Personnel with responsibilities for the use, handling, and storage of hazardous substances must be provided with competency training and environment, health, and safety training. The training should enable the personnel to perform their tasks efficiently without resulting in any contamination, as well as knowing the appropriate actions to take in response to an emergency (e.g. fire) or spill incidents.			
	All hazardous substances must be stored with adequate spill protection (bundling) in secured (locked) and roofed areas to prevent wash-off of hazardous substances by rainfall/surface runoff as far as is practicable (fuel bowzers, for example, might need to be stored in the open). Secondary containment (including bunding) must be appropriate to the volume and nature of the hazardous substances being stored but should at a minimum be $\geq 110\%$ of the combined volume of the stored material. The base and bund walls must be impermeable to the material stored and of adequate capacity.	<ul style="list-style-type: none"> ■ Contractor ■ Contractor's EO ■ ECO 	■ Construction	
	Hazardous substances storage and handling areas should not be positioned near surface	■ TNPA Project Manager	■ Construction	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	(stormwater) runoff drains or surface water drainage areas, as these will lead to entering the estuary. If this is impossible, stormwater drains must have protection facilities.	<ul style="list-style-type: none">ContractorContractor's EOECO		
	The volume of hazardous substances stored on site should be kept to the minimum practicable.	<ul style="list-style-type: none">TNPA Project ManagerContractorContractor's EOECO	<ul style="list-style-type: none">Construction	
	A register/inventory of chemical and hazardous substances stored/used on site should be maintained and regularly updated.			
	Construction machinery, equipment, and vehicles must not be washed on site unless this is unavoidable, and measures are in place to retain and then remove the wash liquid (e.g. in conservancy tanks).			
	Photographic records of hard surfaces within the construction site should be maintained to provide to an ECO (if required) with evidence that hazardous substance spills and leaks have not occurred, or if they did occur, were properly contained and cleaned.	<ul style="list-style-type: none">ContractorContractor's EOECO	<ul style="list-style-type: none">Construction	
	Sufficient, marked receptacles for the disposal of hazardous waste, such as oily rags, sorbent material used to clean up spills, and so must be present on site.	<ul style="list-style-type: none">TNPA Project ManagerContractorContractor's EOECO	<ul style="list-style-type: none">Construction	
Cement mixing and batching	Debris must be prevented from entering the water.	<ul style="list-style-type: none">TNPA Project Manager		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	The intentional disposal of debris into the water is strictly prohibited. Debris on the quay apron must not be swept into the water but must be recovered and disposed at an appropriate waste disposal site by a licensed contractor.	<ul style="list-style-type: none">ContractorContractor's EOECO		
	Fresh concrete and cement are highly alkaline and corrosive and can cause significant water and sediment quality impairment. The use of wet concrete and cement near, over, and in water thus requires careful control to minimise the risk of spillage.	<ul style="list-style-type: none">TNPA Project ManagerTNPA PERContractorContractor's EOECO	<ul style="list-style-type: none">Construction	
	Concrete and cement batching should ideally not occur at the construction site. Concrete and cement should rather be delivered in ready-mix form.			
	If concrete is poured with a concrete pump, ensure hoses and couplings are sealed and secured.			
	Concrete forms must not be filled to overflowing.			
	Concrete should ideally not be poured when the weather is adverse conditions such as heavy rain as it could result in run off and contamination.			

Table 5-6 –Noise Management: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.5. NOISE				
Impact Management Outcome: To ensure that noise impacts on the surrounding environment are minimal or mitigated.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Complaints Register. Incident reporting system. An incident and complaints register must be maintained. TNPA incident classification and reporting management procedure. Contractor Method Statement. Equipment, machinery and vehicle maintenance. 				
General	TNPA's SOP for noise abatement must be implemented if available. Provide complaints register to report any excessive noise incidents. Manage all complaints as per the Incident Classification and Reporting Management Procedure. Noise zones should be clearly demarcated by affixing symbolic safety signs (SANS 1186-1) for hearing protection at all entrances and exits. Use of hearing protective equipment must be compulsory in noise zones (the decanter platform and the area in front of the boilers) until exposures are reduced below the noise rating limit.	<ul style="list-style-type: none"> TNPA Project Environmental Resource Contractor Contractor's EO ECO 	Construction	<ul style="list-style-type: none"> Noise cannot be fully eliminated due to the nature of construction activities however it can be limited as far as practically possible. Close-out of actions on the Public Complaints Register, specifically noise complaints No health incidents related to noise-induced injuries

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	Investigate all complaints or observations of excessive noise and assess possibilities for mitigation.			
	Notify surrounding port users on the commencement of construction where applicable.			
General	Avoid noisy activities at night-time and outside of normal weekend working hours where possible. If this is not practical or possible, then notice must be provided to surrounding port users if construction activities will have extended hours.			
	Employees / contractors are to be provided with appropriate hearing protection when undertaking work in noisy environments.			
Sensitive fauna and avifauna	If dolphins or waterbirds are observed near the construction/dredging sites, it can be assumed to have entered the area 'voluntarily' and not to be overly disturbed by the underwater noise.	<ul style="list-style-type: none"> ■ TNPA Project Environmental Resource ■ Contractor ■ Contractor's EO ■ ECO 	■ Construction	Identification of noise sensitive fauna and avifaunal species
	The presence of dead fish near the dredging operations should be reported to the ECO. The dead fish should be collected and photographed if possible, so that the fish most sensitive to dredging can be identified, if excessive fish death is experienced, dredging activities to cease immediately and			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	the DFFE: Oceans and Coasts Department must be contacted for guidance.			

Table 5-7 – Waste Management: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.6. WASTE MANAGEMENT				
Impact Management Outcome: To ensure the correct handling, storage, transportation and disposal of general waste and hazardous waste.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> ■ Induction training and records. ■ Waste Management Plan ■ Waste manifests. ■ Relevant SANS Codes of Practice. ■ Waste manifests and safety disposal certificates (all waste streams). ■ Emergency preparedness and response procedure. ■ TNPA incident classification and reporting management procedure. ■ Public Complaints Register. ■ Monitoring and audit reports. 				
Waste Management	The construction and dredging contractor/s must develop project-specific Method Statements that outline how hazardous waste will be managed on dredging, construction, and support vessels. The Environmental Management Plan must include a Hazardous Substance Spill Response and Contingency Plan. The plan must identify appropriate response procedures in the event of a hazardous substance spill in water. The plan must provide specific responses for spills of different types of hazardous substances that may be handled. Adherence to the Environmental Management Plan must be monitored by an on-site	<ul style="list-style-type: none"> ■ TNPA Construction Manager ■ Contractor ■ Contractor's EO ■ ECO 	<ul style="list-style-type: none"> ■ Construction 	<ul style="list-style-type: none"> ■ No litter at the construction site ■ Feedback on waste reduction and avoidance measures should be submitted by all contractors ■ Waste must be separated at its source to enable effective reuse ■ Any waste unsuitable for reuse or recycling should be managed

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	(contractor) Environmental Control Officer and be audited by an Environmental Control Officer.			through disposal at a licensed landfill
	The construction Contractor must provide compulsory environmental awareness training for the construction workforce. The training must sensitise the workforce to the adverse environmental consequences of non-hazardous solid waste (especially plastic) on estuarine and marine environments and the consequent need to prevent the ingress of such waste into Port water. Environmental awareness training should be ongoing throughout the life of the project.			
	A reduce, reuse, recycle waste philosophy should be followed.			
	The intentional disposal of non-hazardous solid waste (indeed any waste) into the PoRB is prohibited. Induction to include topics on fines and imprisonment as imposed by NEMA.			
	Construction personnel must be encouraged to collect and dispose of plastic litter and other non-hazardous solid waste they see in the construction area, even if it does not originate from the construction site/operation.			
	Regular clean-up of litter should be carried out across the construction site.			
	If non-hazardous solid waste from the construction site enters the Port's water this should be recovered immediately where			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	practicable. This might be difficult from the quayside, but pool cleaning nets can be used for this purpose if a construction support vessel is available.			
	On site temporary storage areas for non-hazardous solid waste must be clearly demarcated, signposted, and maintained. These should be situated as far as practically possible from the water's edge.			
	Waste should be properly segregated, stored, and handled to promote recycling and avoid impacts to human health.			
	Bins, skips, and/or other receptacles for the temporary storage of non-hazardous solid waste must be covered with lids to avoid them becoming a source of litter.			
	Non-hazardous solid waste must be regularly removed from the construction site and disposed at a registered waste disposal site in accordance with national and local waste legislation, using a licensed waste disposal contractor. The waste contractor must provide proof the waste was disposed at a registered waste disposal site. The contractor should keep such records on site for auditing by an ECO.			
	Waste receptacles must not be washed on site unless the wash water is captured and disposed to sewer. The wash water should not be allowed			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	to enter surface runoff channels or stormwater drains as these will discharge into the Port.			
Emergency management waste	Appropriate methods for the disposal of cleaned up hazardous substance and clean-up materials must be identified in the Hazardous Substance Spill Response and Contingency Plan/Method Statement – this material must not be disposed with ‘normal’ waste but rather at an appropriately licensed hazardous waste disposal site.	<ul style="list-style-type: none"> ■ TNPA Construction Manager ■ Contractor ■ Contractor’s EO ■ ECO 	<ul style="list-style-type: none"> ■ Construction 	<ul style="list-style-type: none"> ■ To ensure that accidental spills and leaks do not cause detrimental damage to the receiving environment.

Table 5-8 – Dredge Management: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.7. DREDGE MANAGEMENT				
Impact Management Outcome: <ul style="list-style-type: none"> ■ To implement measures to prevent the contamination of surface and groundwater resources, including the estuarine functional zone. ■ To prevent erosion, including along the shoreline. ■ To minimise alterations to the hydrodynamic functioning of the PoRB. 				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> ■ Induction training and records. ■ TNPA incident classification and reporting management procedure ■ Method Statement ■ Environmental awareness programme/toolbox talks. ■ Monitoring programme. ■ DFFE reporting. 				
Dredging / sea-based construction	TNPA must secure a permit from the DFFE for the offshore disposal of sediment at the existing offshore disposal site before capital dredging proceeds.	TNPA PER	■ Construction	<ul style="list-style-type: none"> ■ Maximum dredging volume per the approved dredged material disposal permit ■ The dredged area should correspond to the dredging plan
	Dredging methods as approved by the DFFE must be implemented. Disposal of dredged material must only occur at the existing site as per the dredging plan.	<ul style="list-style-type: none"> ■ TNPA Construction Manager ■ Contractor ■ Contractor's EO ■ ECO 		
	Only the approved depth and footprint for dredging must be implemented. The dredged area should correspond to the dredging plan. The berth pocket should not have steep slopes, to avoid the trapping of water in the pocket as this could lead to a deterioration in water quality			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	that goes on to affect benthic biological resources.			
	Dredging outside the approved footprint should occur only if this is unavoidable (e.g. vessel navigation safety reasons, to remove unexpected solid objects). In the event dredging outside the approved dredging footprint is required, the dredging should proceed only after approval from TNPA.			
	Dredging vessel and barge tracks should be examined to ensure dredged sediment is disposed as evenly as possible across the dredged spoil disposal site.			
	There should be no overflow or leakage from barge compartments during transit to the existing dredged spoil disposal site off the PoRB (as indicated in Figure 5-3 below).			
	Hoppers and barges should not be overfilled.			
	Construction methods that limit the resuspension of fine-grained sediment into the water column must be used wherever possible.			



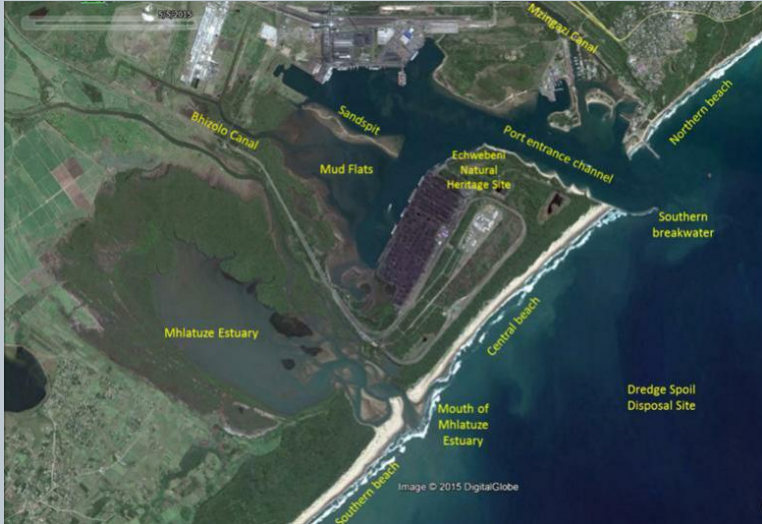
Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
<div>   </div> <p>Figure 5-3 – Location of the offshore disposal site</p>				

Table 5-9 – Archaeology EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.8. ARCHAEOLOGY				
Impact Management Outcome: To ensure that archaeological material is identified and protected.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Health, safety, environmental and community incident and complaints management system register. Incident classification and reporting management procedure (to be developed). Monitoring and audit reports. 				
Archaeology	Proper lines of communication between the developer, the consultants, the SAHRA, and the specialist for maritime archaeology must be maintained throughout all project phases.	<ul style="list-style-type: none"> TNPA Construction Manager Contractor Contractor's EO ECO 	Construction	<ul style="list-style-type: none"> Appropriate reporting must be submitted to AMAFA/SAHRA No terrestrial/underwater heritage resources to be damaged during construction
	In case any cultural/archaeological material is uncovered, work must cease immediately, and the find reported. Further disturbance, damage, or removal must be prevented. Personnel must be informed that it is a legal requirement to report any find immediately and that under the National Heritage Resources Act 25 of 1999 (NHRA), fines or imprisonment or both can be imposed on offenders. [Section 51 of the National Heritage Resources Act, No. 25 of 1999.		Construction	
			Construction	

Table 5-10 – Palaeontology: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.9. PALAEOLOGY				
Impact Management Outcome: To ensure that palaeontological material is identified and protected.				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Public Complaints Register. Monitoring and audit reports. 				
Chance Finds	<p>If any palaeontological material is exposed during digging, excavating, drilling or blasting the finds must be reported and the Chance Find Protocol must be implemented.</p> <p>The following procedure is only required if fossils are seen on the surface and when excavations commence:</p> <ol style="list-style-type: none"> When excavations begin the rocks must be given a cursory inspection by the environmental officer or designated person. If fossils are found, construction in the immediate vicinity must cease and a specialist must inspect the site and provide further guidance. Where possible, photographs of similar fossils must be provided to the contractor to assist in recognizing the fossil plants and bones that might be encountered on site. This information must be built into the EMPr's training and awareness plan and procedures. If there is any possible fossil material found by the Contractor/environmental officer then a qualified palaeontologist should visit the site to inspect the 	<ul style="list-style-type: none"> TNPA Construction Manager Contractor Contractor's EO ECO 	<ul style="list-style-type: none"> Construction 	<ul style="list-style-type: none"> No palaeontological artefacts to be damaged during construction

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	<p>selected material and check the excavations where feasible.</p> <p>5.Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site, a South African Heritage Resources Agency (SAHRA) permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.</p> <p>6.If no fossils are found and the excavations have finished, then no further monitoring is required.</p>			

Table 5-11 – Terrestrial Biodiversity: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Target
5.10. BIODIVERSITY				
Impact Management Outcome: <ul style="list-style-type: none"> Prevent the unnecessary destruction of, and fragmentation of the biodiversity of the area. No excess habitat loss within sensitive areas unless included in the EA. Revegetation of cleared areas. Alien vegetation clearing & control. Reduce erosion. Adherence to the Biodiversity Compensation Plan 				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Induction training and records. TNPA incident classification and reporting management procedure. Method Statement. Environmental awareness programme/toolbox talks. Monitoring and audit reports. Alien Invasive Management Plan. 				
No-go areas	The areas to be developed (or activity areas) must be specifically demarcated to prevent the movement of staff or equipment/vehicles into the surrounding High sensitivity environment i.e., adjacent forest areas, wetlands and sandspits (Figure 5-1 and Figure 5-2). Signs must be erected to enforce this.	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	<ul style="list-style-type: none"> To ensure that there is no disturbance to terrestrial biodiversity outside of the project footprint
	All laydown, chemical toilets etc. must be restricted to the areas as per the design. Once construction is complete all	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Target
	materials and temporary structures must be removed from site.			
Species of Conservation Concern (SCC)	A pre-construction survey must be undertaken by a qualified biologist to identify plant species of conservation concern. All species must be marked for removal. Following permit acquisition, species are to be removed to the biodiversity compensation area and replanted.	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	
Fauna	No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. These actions are illegal in terms of provincial environmental legislation.	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	
	Pre-development screening of the site by the ECO and specialist must be undertaken. Following permit acquisition, species are to be removed to the biodiversity compensation area. Thereafter, inspection during actual clearance must be undertaken by the ECO. Not all species will be eligible to be removed for various reasons including size, age, etc. The specialist and ECO will provide guidance during this process.	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	
	Any holes/deep excavations must be dug in a progressive manner in order to allow burrowing animals time to move off and to prevent trapping. Should the holes remain open overnight they must be covered temporarily to ensure no fauna species fall in.	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	
	Should any SCC fauna be observed nesting within the proposed footprint area before or during construction, all activities must cease immediately. A relevant faunal	<ul style="list-style-type: none"> Site Manager Contractor EO 	<ul style="list-style-type: none"> Pre-Construction Construction 	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Target
	specialist must be consulted in order to facilitate the removal and relocation of any SCC animals.			
Rehabilitation	Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds and to support the adjacent habitat. This will also reduce the likelihood of encroachment by more alien invasive plant species.	<ul style="list-style-type: none">ContractorEO	<ul style="list-style-type: none">Post Construction	
	All disturbed project areas are to be rehabilitated and appropriately landscaped. Rehabilitation of the disturbed area must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with indigenous plant and grass species local to the project area vegetation type. Progressive rehabilitation of cleared areas will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank.			
Alien Vegetation Management	The existing TNPA SOP for Alien Vegetation Management must be adhered to.	<ul style="list-style-type: none">Site ManagerContractorEOOperator	<ul style="list-style-type: none">Pre-ConstructionConstructionOperationDecommissioning	
	All alien vegetation occurring within construction and operational areas must be removed and monitored for re-growth.			
	No plant species whether indigenous or exotic may be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.			
	Walked surveys of the project perimeter, access roads and other areas adjacent to hard infrastructure to monitor for alien vegetation and re-growth.			

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Target
Compensation Areas	<p>Implementation of the Compensation Plan at the designated site located immediately to the south south-west of the proposed Berth 605 development.</p> <p>The compensation approach entails the integration of new habitat creation into the Berth 605 final design (Figure 5-4).</p> <p>The newly created tidal pool habitat should be functionally equivalent to the existing tidal pool connected to the assembly basin, including surface area.</p> <p>The shoreline and mudflat habitat creation and incorporation of grassland and forested habitat areas south of the proposed Berth 605 to be incorporated during construction.</p> <p>The designated compensation areas and surroundings must not be encroached upon by other construction activities such as materials laydown, vehicle movement etc.</p> <p>The specific biodiversity management, alien vegetation control and monitoring measures specified within the compensation plan must be implemented.</p>	<ul style="list-style-type: none"> ■ Site Manager ■ Contractor ■ EO ■ ECO 	<ul style="list-style-type: none"> ■ Pre-Construction ■ Construction ■ Operation 	<ul style="list-style-type: none"> ■ To ensure the compensation plan is implemented

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Target
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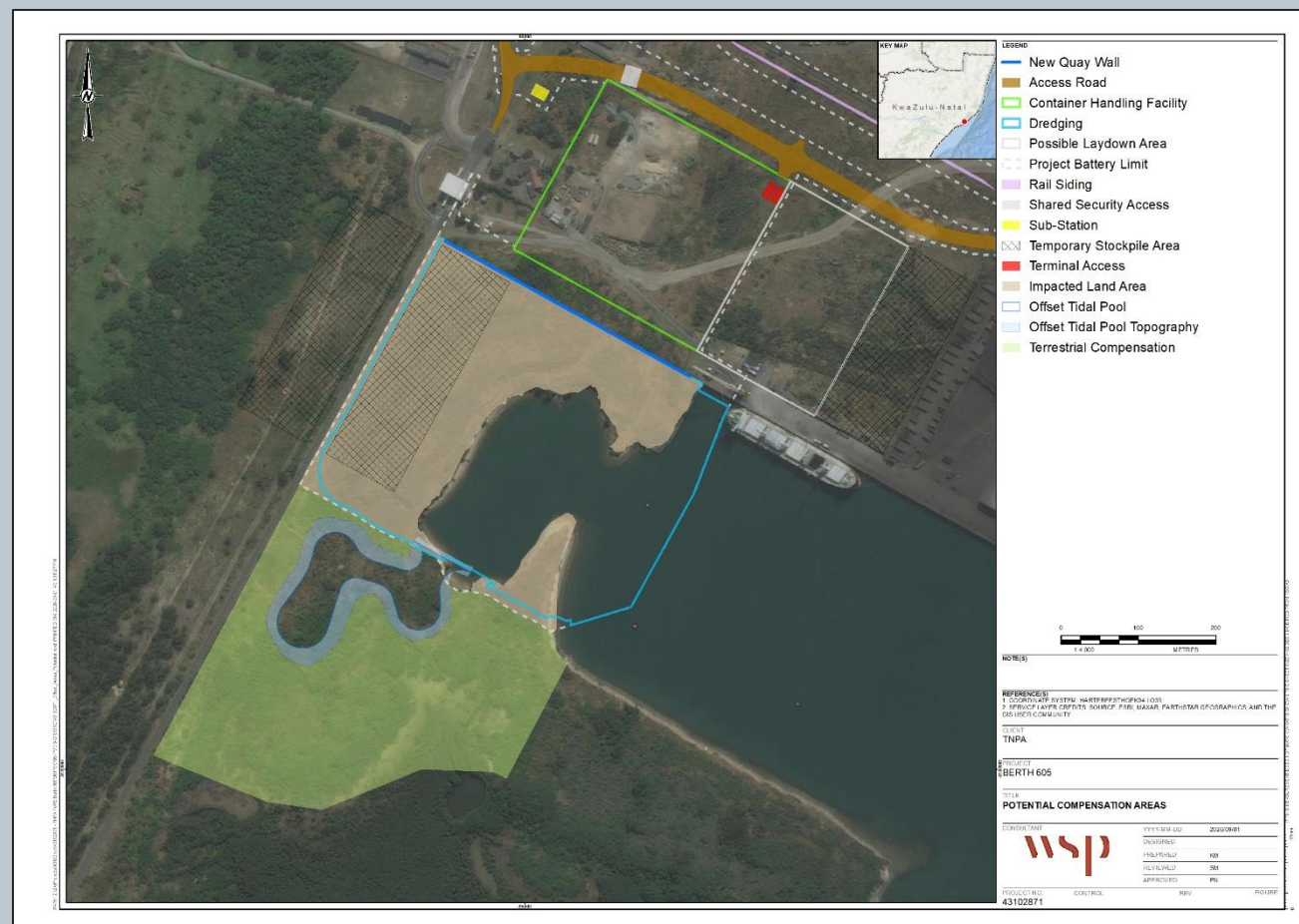


Figure 5-4 – Compensation Areas that form part of the Berth 605 project

Table 5-12 – Wetlands: EMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
5.11. WETLANDS			
Impact Management Outcome: <ul style="list-style-type: none"> Prevent the unnecessary destruction of, and fragmentation of the wetlands surrounding the project area. 			
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Induction training and records. TNPA incident classification and reporting management procedure Environmental awareness programme/toolbox talks. Monitoring and audit reports. Alien Invasive Management Plan. 			
Wetlands	There are wetlands within 500m from the site, these are located outside the project footprint and must not be impacted upon by construction related activities (Figure 5-2).	<ul style="list-style-type: none"> Site Manager Contractor EO ECO 	<ul style="list-style-type: none"> Pre-Construction Construction
	Vehicles should make use of existing access roads and vehicles must avoid using non development offroad areas to gain access to the construction site.		
	The wetland and forest areas surrounding the site must be treated as 'no go'	<ul style="list-style-type: none"> Site Manager Contractor EO ECO 	<ul style="list-style-type: none"> Pre-Construction Construction
	Any soil stockpiles within 100 m of the watercourse should be bunded using an appropriate structure (silt nets, sandbags, etc.).		
	All laydown, chemical toilets etc. must be restricted to the areas as per the project design. Any materials may not be stored for extended periods		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	of time once construction is completed and must be removed from the area once the construction/closure phase has been concluded.		

Table 5-13 – Socio-Economic: EMPr Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
5.12. SOCIO-ECONOMIC				
Impact Management Outcome: <ul style="list-style-type: none"> To ensure that potential negative socio-economic impacts are mitigated and managed. To ensure that potential positive socio-economic impacts are enhanced. 				
Indicator and Compliance Mechanism: <ul style="list-style-type: none"> Induction training and records. Monitoring and audit reports. TNPA incident classification and reporting management procedure PPE Register. Occupational health and safety plan (to be developed). Employment records and community engagement local enterprise development records. Public Complaints Register. 				
Local economic development	<p>Actively engage with local suppliers for construction materials, equipment, and services to ensure a significant portion of the expenditure remains within the Richards Bay and KwaZulu-Natal region, in line with the TNPA Preferential Procurement Policy.</p> <p>Provide skills development and training programmes for local workers to equip them for opportunities created during the construction phase. This ensures that more individuals from the local communities' benefit from the project, while also enhancing long-term employability.</p> <p>Establish partnerships with local SMEs to integrate them into the project supply chain. This can include mentoring and providing support to help these</p>	<ul style="list-style-type: none"> TNPA Project Manager TNPA Construction Manager Supplier Development Personnel Contractor Engineering, Procurement, and Construction Manager (EPCM) 	Construction	<ul style="list-style-type: none"> Adherence with TNPA's Transnet Preferential Procurement Policy

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe	Management Targets
	businesses meet the project's quality and capacity requirements.			
	Collaboration with Local Institutions: Partner with local technical and vocational education and training (TVET) colleges to source labour and provide on-the-job training opportunities for students.			
	Source construction materials machinery, and equipment from local suppliers to boost production within Richards Bay and KZN, thereby maximising regional economic benefits.			
	Engage local SMEs in the supply chain by providing technical assistance, contract opportunities, and capacity-building initiatives to enable their participation in the project.			

6. RECOMMENDATIONS FOR SAMPLING AND MONITORING

6.1. SPECIALIST RECOMMENDATIONS FOR MONITORING

This section provides a summary of the specialist recommendations for monitoring over the life of the Berth 605 project.

Table 6-1 – Marine/Estuarine Specialist Recommendations for Monitoring

Aspect	Recommendation for Monitoring
Construction Phase	
Sediment resuspended by dredging	<p>There is no specific requirement to monitor the impact of resuspended sediment deposition on benthic biological resources since the effects are well documented in the scientific literature. Notably, studies in the Port of Richards Bay—including the development of the 600 Berth Basin and Berth 306 at the Richards Bay Coal Terminal Basin (CSIR, 2008)—have shown that benthic biological resources that are disturbed in this way are not completely lost and will recover over time. There is thus certainty that benthic biological resources in affected areas in the port will recover if no new significant anthropogenic disturbances are introduced.</p> <p>However, monitoring benthic biological resource impacts during and recovery after dredging will provide valuable insights into recovery rates. These findings can be used to inform the significance of the likely environmental impacts of capital dredging campaigns for future infrastructure development in the port.</p>
Loss in aquatic ecological function and productivity in intertidal habitats due to the deposition of sediment resuspended by dredging	<p>The periodic analysis of the chlorophyll-a concentration in sediment sampled at strategically positioned stations in the intertidal of the Sandspit is recommended. It is important to recognise that chlorophyll-a concentrations in the intertidal are naturally variable, so the measurements will only be useful in identifying major decreases in the concentration. Records of intertidal benthic fauna that are visible on the sediment surface and the number of burrow openings of larger burrowing benthic fauna (e.g. sandprawns) should be made when the sediment samples for chlorophyll-a analysis are collected. Sediment cores should be collected at strategically positioned stations in the intertidal habitat and photographed, to provide a record of fine-grained sediment deposition and whether this material is accumulating excessively. Cores should be collected in areas where there is a visible increase in the amount of fine-grained material in the sandy intertidal.</p>
Remobilisation of oxygen depleting substances from sediment during dredging	<p>The dissolved oxygen concentration at and near active dredging operations should be measured periodically to confirm the significance assessment for this impact. If the</p>

Aspect	Recommendation for Monitoring
	measurements show the dissolved oxygen concentration is regularly or periodically substantially depressed below 5 mg.L ⁻¹ then the dredging rate should be reduced, or dredging should be performed in short cycles.
Nutrient remobilisation from sediment/soil during dredging	The chlorophyll-a concentration at and near active dredging operations should be measured to confirm the significance assessment for this impact. If the measurements show the chlorophyll-a concentration is consistently >5 mg.L ⁻¹ then the dredging rate should be reduced, or dredging should be performed in short cycles.
Remobilisation of noxious substances from sediment/soil during dredging	Water samples collected at two-week intervals near the active dredging operation and from the dredging support barge overflow during the first two months of dredging should be tested for toxicity to confirm the significance assessment for this impact. The testing should be performed on raw and centrifuged samples using sea urchin embryo-larval development and 4-day water only amphipod survival tests. If the testing does not reveal evidence for toxicity, then the testing should be performed at monthly intervals.
Deterioration in water quality related to increased suspended sediment concentrations during dredged spoil disposal	The suspended sediment concentration and turbidity should be measured near the dredged spoil disposal site at two-weekly intervals for the first two months of dredged material disposal. Measurements should be made over a 60 second period at the surface, middle, and bottom of the water column. A decision should be made on the frequency of measurements thereafter based on the findings of these initial surveys. The survey positions should correspond to those used by the CSIR (2008), excluding sites more than 5 km from the dredged spoil disposal site.
Remobilisation of oxygen depleting substances from sediment during dredged spoil disposal	The dissolved oxygen concentration should be measured near the dredged spoil disposal site at two-weekly intervals for the first two months of dredged material disposal. Measurements should be made over a 60 second period at the surface, middle, and bottom of the water column. A decision should be made on the frequency of measurements thereafter based on the findings of these initial surveys. The survey positions should correspond to those used by the CSIR (2008), excluding sites more than 5 km from the dredged spoil disposal site.
Deterioration in sediment quality on dredged spoil disposal site due to the disposal of contaminated dredged material	Sediment should be sampled on and near the dredged spoil disposal site and analysed for the concentrations of a suite of metals and polycyclic aromatic hydrocarbons to confirm the significance assessment for this impact. The monitoring will have the added benefit of acting as a tracer for identifying the dispersion and transport of dredged material from the dredged spoil disposal site. Sediment samples should be collected at ~6-month intervals before and after dredged spoil disposal for the Berth 605 Project but should go on for longer if dredged material for other infrastructure projects is

Aspect	Recommendation for Monitoring
	disposed at the same time or within a short timeframe after dredging for the Berth 605 Project ceases.
Smothering and disturbance of benthic biological resources by disposed dredged material	Benthic macrofaunal communities should be sampled on and near the dredged spoil disposal site. Sediment samples should be collected at ~6-month intervals before and after dredged spoil disposal for the Berth 605 Project but should go on for longer if dredged material for other infrastructure projects is disposed at the same time or within a short timeframe after dredging for the Berth 605 Project ceases.
Change in hydrodynamic conditions due to accumulation of dredged material at dredged spoil disposal site	The bathymetry of the existing open water dredged spoil disposal site should be surveyed going forward. The surveys will serve two main purposes. First, they will identify if disposed dredged material has accumulated (mounded) to a degree a notice to mariners is required (as was the case when dredged material was disposed for the Berth 306 development). Second, they will identify areas where material dredged in future dredging campaigns should be preferentially disposed to ensure there is no mounding on the disposal site and to encourage dispersion of deposited sediment, so that the wave climate is not unduly affected.
Operational Phase	
Loss of tidally influenced pool and related ecological value and productivity	If similar habitat is created to compensate for the loss of the small tidally influenced pool, colonisation of the pool by biological resources should be monitored over time to not only demonstrate that it has achieved the intended goal of creating ecologically valuable habitat, but as importantly as a guide to inform similar habitat creation that might be considered elsewhere in the port in future.
Ecological effects of a change in hydrodynamic functioning in the port	TNPA should assess the stability of slopes in the lengthened 600 Berth Basin. Periodic bathymetric surveys performed by TNPA to guide maintenance dredging requirements will inform on whether sediment deposition and erosion patterns are abnormal.
Ecological effects of increased maintenance dredging and dredged sediment disposal regimes	TNPA must secure a permit from the Department of Forestry, Fisheries and the Environment for the offshore disposal of maintenance dredged sediment before maintenance dredging proceeds. This involves the monitoring of sediment quality in the proposed dredging footprint.
Increased load of contaminants introduced into the port by surface runoff	The physical and chemical properties of surface runoff from Berth 605 should be periodically monitored (e.g. quarterly basis) for contaminants that might arise from port related activities and sources.

Table 6-2 – Dredging/Dredge disposal monitoring

Description	Location	Comment
Environmental baseline monitoring		
Turbidity Profiling and sampling to determine TSS concentrations	Port of Richards Bay	Not necessary as adequate data exists
	Offshore dredge spoil disposal site	Not necessary as adequate data exists
Pre-dredging bathymetric surveys / shoreline surveys	Berth 605 dredging footprint	Project-specific surveys have been completed
	Offshore dredge disposal site	Adequate data presently exists, but a bathymetric in-survey will be required before dredging commences
	Southern, Central and Northern shorelines	Available from satellite imagery (see analyses in WSP, 2025)
Monitoring for Compliance		
Dredging spoil disposal records	Berth 605 dredging footprint	Not applicable
	Offshore dredge spoil disposal site	Essential - Should there be any impacts of the dredging and/or validation of the predicted impacts this will require detailed knowledge of dredge spoil disposal activities. Records thus need to be kept for each dredge disposal event. The information to be reported should include start of the disposal (<i>i.e.</i> , “doors open”), the conclusion of the disposal (<i>i.e.</i> , “doors closed”), and approximate hopper volumes. These records need to be stored for safe keeping after dredging operations have ceased (<i>i.e.</i> , preferably indefinitely but at least for a minimum of 2 to 3 years).
Turbidity and TSS concentration compliance monitoring (other variables to be included in the profiling if possible)	Potentially impacted areas within the Port of Richards Bay	Initial monitoring required but can be reduced or stopped once compliance is confidently established
	Offshore dredge disposal site	Not required

Description	Location	Comment
Monitoring to support verification of impact assessments		
Turbidity and TSS concentration monitoring (other variables to be included in the profiling if possible)	Potentially impacted areas within the Port of Richards Bay	As per turbidity and TSS compliance monitoring, but possible of longer duration.
	Offshore dredge disposal site	Optional
Shoreline change	Southern, Central and Northern shorelines	Available from satellite imagery (see WSP, 2025)
Monitoring Physical Changes in Habitat		
Post-dredging bathymetric and shoreline change surveys	Potentially impacted areas within the Port of Richards Bay	Not required for environmental purposes
	Offshore dredge disposal site	Required for environmental purposes (immediately after end of dredging and then approximately 18 months later)
	Southern, Central and Northern shorelines	Available from satellite imagery (see WSP, 2025)
Physical and biogeochemical changes in benthic habitats	Potentially impacted areas within the Port of Richards Bay	Recommended (however contaminant (metals) characterisation of the sediments not deemed essential) – could form part of regular (annual) monitoring activities in the port
	Offshore dredge disposal site	Optional
	Southern, Central and Northern shorelines	Not required
Dredging Records		
Detailed records of dredging operations	Dredging Footprint	Detailed dredging and dumping records are essential
	Offshore dredge disposal site	

Table 6-3 – Wave Climate and Shoreline Change monitoring recommendations

Aspect	Recommendation for Monitoring
Wave Climate and Shoreline Change	<p>Conduct annual satellite-based shoreline monitoring, particularly along the southern beach.</p> <p>If beach width reduces to 20–30 m, consider targeted beach nourishment.</p> <p>Reassess cumulative impacts if multiple dredging projects are planned in close succession.</p>

Table 6-4 – Terrestrial Biodiversity monitoring recommendations

Aspect	Recommendation for Monitoring
Alien Invasive Plant Species	<p>The presence of alien and invasive flora species should be documented prior to the commencement of the development of the infrastructure and rehabilitation activities, and the baseline case used as a benchmark against which the spread of these species can be monitored.</p> <p>Annual monitoring inspections should identify target areas for clearing and subsequent rehabilitation/re-vegetation programmes.</p>
Fauna mortalities	<p>A record of fauna mortalities/injury due to interactions with Project infrastructure/activities should be kept on site and regularly reviewed to inform the need for implementation of any additional mitigation measures.</p>
Monitoring the re-establishment of vegetation	<p>TNPA must ensure that the re-establishment of vegetation at the Compensation site is monitored monthly until fully re-established.</p>

7. REFERENCES

1. EIR for the Berth 605 project and associated infrastructure, WSP (2026).