



TRANSNET SOC LTD

**DCT BERTHS 203 TO 205 - RECONSTRUCTION, DEEPENING AND
LENGTHENING**

PORT OF DURBAN

SPECIFICATION – DEMOLITION AND SITE CLEARANCE

1785-CO-000-C-SPC-0018 Rev T-01

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1.0 SCOPE

1.1 Project

This specification is a project specific technical specification for the DCT Berths 203 to 205 Reconstruction, Deepening and Lengthening Project in the Port of Durban.

1.2 Scope

The scope of this specification covers the *Employer's* requirements for the demolitions and site clearance required to enable the unobstructed construction of the new Berths 203 to 205. The scope of this portion of the works will be executed in concordance with construction phasing and is summarised as the demolition and removal of the following existing infrastructure:

1. Phase 1 – Berth 205 Construction

- Mess and Ablution facility.
- Existing Crane yard – fencing, reinforced concrete beams, paving and all material above +2.2m CDP. The removal of material below +2.2m CDP is covered under specification 1785-CO-000-C-SPC-0004 for dredging.
- Return quay block wall including capping beam, service tunnel, trial anchors, block work wall, stone bed foundations and rock rubble scour protection.
- Shore protection concrete beams.
- Stockpile of rock rubble.
- Ro-Ro ramp.
- Capping beam and service tunnels.
- Relocation of mini substations, high mast lights and CCTV masts.
- Water, sewer, storm water and electrical infrastructure.
- Existing quayside furniture.
- Placement of temporary stop blocks on existing crane rails at Berth 204 end.

2. Phase 2 – Berth 204 Construction

- Capping beam and service tunnels.
- Relocation of mini substations, high mast lights and CCTV masts.
- Existing quayside furniture.
- Placement of temporary stop blocks on new rails at Berth 205 end.
- Relocation of temporary stop blocks to existing crane rails at Berth 203 end.

3. Phase 3 – Berth 203 Construction

- Mess and Ablution facility.
- Substation building.
- Ro-Ro ramp.
- Capping beam and service tunnels.
- Relocation of mini substations, high mast lights and CCTV masts.
- Water, sewer, storm water and electrical infrastructure.
- Existing quayside furniture.
- Relocation of temporary stop blocks on new rails at Berth 204 end.

The extent of the required demolitions for each phase is detailed in the drawings listed in Section 2.1 of this document.

2.0 NORMATIVE REFERENCES

2.1 Reference Documents

The *works* shall be carried out as specified in the following documents:

- a) This Specification.
- b) Industry Codes, Standards and Specifications as listed in Section 2.2.
- c) *Employer's* Project Specific Technical Specifications as listed in Section 2.3.
- d) Project Drawings:
 - 1785-C0-050-C series of drawings – entire series
 - 1785-C0-110-C-DWG-0001-01
 - 1785-C0-110-C-DWG-0001-02
 - 1785-C0-110-C-DWG-0001-03
 - 1785-C0-110-C-DWG-0001-04
 - 1785-C0-140-C-DWG-0008-01
 - 1785-C0-140-C-DWG-0008-02
 - 1785-C0-140-C-DWG-0008-03
 - 1785-C0-140-C-DWG-0008-04
- e) Method statement prepared by the *Contractor*, as described in Section 4.1.
- f) Project Geotechnical Reports, included in Part 4 - Site Information.

2.2 Standard Specifications

The *Contractor* shall provide and maintain current copies of all the standard specifications referred to herein below on the site for reference by both parties.

The governing standard(s) for this specification shall be:

- a) SANS 1200 C:1980 – Site Clearance.

which shall apply in its entirety except for the variations and additions detailed in the specification clauses below.

Demolitions and site clearance *works* shall comply with the following standard specifications:

- a) SANS 1200 D:1988 – Earthworks.
- b) COTO Chapter 4: Earthworks and Pavement Layers: Materials.
- c) COTO Chapter 5: Earthworks and Pavement Layers: Construction – Breaking up existing pavement layers.
- d) COTO Chapter 6: Concrete Layers – Concrete pavements.

2.3 *Employer's* Project Specific Specifications and Standards

Demolitions and site clearance *works* shall also comply with the following Project Specific Specifications and Standards:

- a) 1785-CO-000-C-SPC-0004 – Dredging and Reclamation (Including Vibro Compaction).
- b) Project Environmental Specifications (PES) as contained in the Works Information and annexures.

3.0 DEFINITIONS

All definitions of responsibilities shall be in accordance with the NEC Engineering and Construction Contract (ECC) for the construction of the *Works*.

Where the standard specifications referenced in this specification refer the “*Engineer*”, replace this term with the term “*Supervisor*”.

For the purpose of this specification, the technical definitions and abbreviations given in SANS 1200C, together with the following definitions shall apply:

3.1 Chart Datum Port

Chart Datum Port refers to the reference level used in the Port of Durban, which is 0,900 m below Mean Sea Level. All levels referred to in this document are relative to Chart Datum Port (CDP).

3.2 Co-ordinate System

The co-ordinate system to be used for all setting out and survey shall be World Geodetic System 1984 (WGS84), LO31, referred to as WG31.

3.3 Tidal Levels

The Astronomical Tide Predictions as defined by the SA Navy Hydrographer and Chart SAN 2006 are as follows:

Table 3.1: Tide Data

Tide	Abbreviation	Level m, Chart Datum Port
Highest Astronomical Tide	HAT	2.287
Mean High Water Springs	MHWS	1.997
Mean Level	ML	1.097
Mean Low Water Springs	MLWS	0.197
Lowest Astronomical Tide	LAT	-0.013

3.4 Method Statements

Method statements shall be compiled by the *Contractor* for all activities. The method statements shall be submitted to the *Supervisor* for acceptance three weeks in advance of the particular activity being undertaken. Full details of all proposed Equipment (including temporary works) and methods shall be provided for acceptance by the *Supervisor*.

No activity shall commence until the method statement has been accepted by the *Supervisor*.

Further details of the requirements of particular method statements are provided in Section 4.

4.0 REQUIREMENTS

4.1 Method Statements

No demolition or removal operations are allowed to commence without the *Contractor* having submitted to the *Project Manager/Supervisor*, and having obtained the *Project Manager's/Supervisor's* acceptance of, a method statement. The Method Statement for each operation must include a comprehensive safety risk assessment.

The *Contractor* shall submit a comprehensive method statement detailing how he intends to perform demolition and removal of all structures. The Method Statement is to include a list, for acceptance, of the *Contractor's* intended dump sites for the expected demolition spoils.

The method statement shall include proposed procedures for detecting underground services and dealing with services if encountered.

Operations must not proceed without prior acceptance of the Method Statement by the *Project Manager/Supervisor*.

4.2 Materials

The following major materials will *inter alia* be encountered during the demolition works:

- a) Reinforced concrete
- b) Un-reinforced concrete
- c) Steel
- d) Timber
- e) Fenders
- f) Bollards
- g) Masonry
- h) Rock rubble
- i) Electrical cables and equipment
- j) Decommissioned trial ground anchors (adjacent to existing return quay).

4.3 Equipment

The *Contractor* shall submit a full description of the Equipment proposed for the execution of the works and shall be subject to the safety, environmental and legal requirements stipulated in the Contract and required by law.

Any marine Equipment used for demolition works shall comply with the general marine Equipment requirements as detailed in the main body of the Works Information.

4.4 Methods and Procedures

4.4.1 Stability of Adjacent Structures and Fills

The *Contractor* is responsible for ensuring the stability/integrity of all structures adjacent to items being demolished.

Particular attention is required for the demolition of the return quay at Berth 205. Demolition shall only commence after the installation of the temporary sheet piling. The return quay block wall and trial anchors are detailed in drawing 1785-C0-050-C-DWG-0002-01. The demolition of the return quay shall be undertaken in combination with the dredging to ensure that:

- a) Material behind the existing return quay is removed in stages during the phased demolition such that slope failure/collapse of the fill material into the basin does not occur.
- b) Basin dredging in front of the return quay wall does not undermine the foundation of the quay wall causing uncontrolled collapse of the wall.

4.4.2 Disposal of Material

Material arising from the demolitions is to be either disposed of off-site or is to be transported to and off-loaded at the salvage yard of the *Employer* which will be within a 10 km radius. Table 4.1 details the disposal designation for various types of material.

Where material is to be disposed of off-site, the material shall be disposed of at a registered, commercial disposal site of the *Contractor's* choice complying to the government gazetted regulations associated with the Waste Act.

The *Employer's* salvage yard will be within a 10 km radius and will be managed by the relevant Transnet Operating Division. The *Contractor* shall comply fully with the salvaging/reverse logistics policy of the *Employer*.

4.4.3 Concrete Material

The *Contractor* may elect to dispose of concrete material arising from demolitions at a registered and licenced crushing operation for crushing and re-use later in the layerworks for the paving.

4.4.4 Demolition Works Adjacent to the Waterside

Where demolition *works* are adjacent to the waterside, the *Contractor* shall put in place effective processes to prevent pieces of rubble falling onto and littering the seabed. Any pieces of material dropped during handling must be recovered.

4.4.5 Decommissioned Trial Ground Anchors

The *Contractor* is to be aware of and make provision for the demolition and removal of decommissioned trial ground anchors located adjacent to the existing return quay. The ground anchors comprise eight (8 No) anchors installed at a declination of 45° to the vertical. During installation of each anchor, grout was pumped locally into the surrounding unconsolidated subsoils at various locations along the anchor free-length to facilitate casing advancement.

As part of the decommissioning works, the ground anchor casings and tendons at the anchor heads were cut to a level below natural ground level (NGL), filled with rubble and/or soil, and buried below NGL.

Disposal of anchors to be at *Contractor's* proposed disposal site, to be approved by the *Supervisor* prior to disposal.

Details are provided in drawing 1785-DWG-107-REV AB in the Works Information. Additional information is provided as per below:

4.4.5.1 Anchor 1A and Anchor 6A

- | | |
|----------------------------|---------|
| a) Casing: | ODEX |
| b) Outer Diameter: | 273 mm |
| c) Inner Diameter: | 261 mm |
| d) Wall thickness: | 6 mm |
| e) Join method: | welded |
| f) Number tendons: | 13 |
| g) Tendon strand diameter: | 15.7 mm |
| h) Current tension load: | None |

4.4.5.2 Anchor 1 to Anchor 6

- | | |
|----------------------------|-----------|
| a) Casing: | Wash-bore |
| b) Outer Diameter: | 273 mm |
| c) Inner Diameter: | 257 mm |
| d) Wall thickness: | 8 mm |
| e) Join method: | threaded |
| f) Number tendons: | 13 |
| g) Tendon strand diameter: | 15.7 mm |
| h) Current tension load: | None |

4.4.6 Hazardous Material

Any hazardous materials such as asbestos (roofing, cladding, etc.) and petroleum/oil-based products, etc. encountered during demolition or salvage works are to be removed from site to a dump site that accepts these materials. These materials shall be removed to a dump site obtained by the *Contractor* and accepted by the *Project Manager/Supervisor*. The *Contractor* is to take due care when handling and disposing of such materials. The *Contractor* is to inform the *Project Manager/Supervisor* immediately when such materials have been identified.

Other ordinary materials which could be contaminated due to their close proximity with these hazardous materials are also deemed as hazardous.

The *Contractor* is made aware that the crane yard has been used for crane erection, demolition and maintenance and as such over time may have experienced oil spills. The *Contractor* shall make allowance for probable oil/petroleum contamination of all the material within the crane yard (all paving and material above +2.2m CDP) and shall undertake the necessary measures to dispose of this material in accordance with the Environmental Regulations.

4.4.7 Unexpected Services

The *Contractor* is made aware that numerous below ground services exist in the crane yard at the end of Berth 205. The *Contractor* shall take all necessary measures to detect and mark out existing services. The *Supervisor* shall be informed immediately where live services not shown on the as-built drawings are detected.

The *Contractor* could encounter other services during the demolition operation. Should any live/active service be uncovered the *Contractor* is to notify the *Project Manager/Supervisor* immediately.

4.4.8 Damage to Salvaged Items

The *Contractor* shall take all steps necessary to prevent damage to salvaged items earmarked for re-use. Any damage to items affecting its serviceability shall be repaired by the *Contractor* at his own expense.

4.5 Record Keeping

Prior to commencement of demolition work for any Phase, the *Contractor* is to produce a stock list of all items on site that are to be demolished and/or salvaged. This stock list will be compared to acceptance receipts produced by the respective salvage yards and dump sites.

The stock list is to include details on the condition/serviceability of each item before removal, such detailed being obtained through a condition survey before commencement of *works* and accepted by the *Supervisor*.

Table 4.1: Material Type Designation

Material for Commercial Offsite Disposal	TPT or TNPA Salvage Yard
Reinforced concrete	Structural steel
Mass concrete	Quay furniture – bollards fenders, ladders, etc.
Asphalt	STS Crane Rails
Reinforcement steel	Small power and lighting materials
Masonry rubble	Plumbing
Roofing materials	Piping
Scour rock and stone	Electrical cables
Ceramics	Carpentry – doors, cupboards etc.
	Fencing
	HML, CCTV Masts
	Armco Barriers
	Mini-sub



5.0 COMPLIANCE WITH REQUIREMENTS

Completion of demolitions for each phase will be accepted once all items have been removed (to dump site or salvage yard), surfaces have been reinstated (as indicated) and disposal documentation has been accepted by the *Supervisor*.

5.1 Tolerances

The *Contractor* shall ensure that cumulative tolerances meet with tolerance requirements as defined within this specification.