

## PART C3: SCOPE OF WORK

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## C3.1 EMPLOYER'S WORKS INFORMATION

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TRANSNET PORT TERMINAL

CONTRACT NUMBER: ICLM HQ 959/TPT

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, DELIVERY, REMOVAL, INSTALLATION AND COMMISSIONING OF BBC PERIMETER FENCE FOR TRANSNET SOC LTD (REG.NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AT THE PORT OF DURBAN POINT TERMINAL (MPT), AGRI-PORT AND MAYDON WHARF TERMINAL



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## SECTION 1

### 1 Description of the *works*

#### 1.1 Executive overview

1.1.1 Port of Durban Bulk, Break Bulk and Car Terminal (BBC Terminal) is made up of Point Terminal, Agri-Port Terminal, and Maydon Wharf Terminal. They are used for import and export purposes, as a storage area for bulk cargo, breakbulk cargo, and cars. The Terminals are physically enclosed with a fence along the perimeters for security purposes, safeguarding of commodities, life, properties, TPT assets, and provision of a physical barrier to prevent stowaway instances.

#### 1.2 Employer's objectives

The employers' objective is to appoint a suitable *contractor* to execute the project for Transnet Port Terminals to comply and adhere to security measure and the following standards:

- a) National Ports Act No. 12 of 2005.
- b) Ensure compliance to International Ship and Port Security (ISPS) Code requirements.
- c) Adhere to security measures and control of access into TPT property and assets.

#### 1.3 Guarantees and Warranties

The extent of guarantees offered on the corrosion protection and installation of the fencing will play an important role in the durability of the fence.

- A Guarantee period on the fencing of not less than seven years on corrosion protection is required.
- The Tenderer is required to indicate on the schedule what guarantee period is offered for the fencing, including the corrosion protection and installation (workmanship).
- A Guarantee period on workmanship for the fencing, including gates and turnstiles, of not less than one year is required,
- The Tenderer is required to issue a guarantee/ warrantee from manufacturer.

#### 1.4 Interpretation and Terminology

The following abbreviations are used in this Works Information:

| Abbreviation | Meaning given to the abbreviation                                      |
|--------------|------------------------------------------------------------------------|
| Approx.      | Approximate                                                            |
| SOP: CEM     | Standard Operating Procedure for Construction Environmental Management |
| CDR          | <i>Contractor</i> Documentation Register                               |
| CDS          | <i>Contractor</i> Documentation Schedule                               |
| CRL          | <i>Contractor</i> Review Label                                         |
| CIRP         | <i>Contractor's</i> Industrial Relations Practitioner                  |

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|         |                                                                             |
|---------|-----------------------------------------------------------------------------|
| CM      | Construction Manager                                                        |
| CSHEO   | Contractor's Safety, Health and Environmental Officer                       |
| DTI     | Department of Trade and Industry                                            |
| DGN     | CAD file format supported by Microstation                                   |
| DWG     | Drawings                                                                    |
| EA      | Environmental Authorisation                                                 |
| EIR     | Environmental Impact Report                                                 |
| EM      | Environmental Manager                                                       |
| EMPr    | Environmental Management Programme                                          |
| EDMS    | Emissions Data Management System                                            |
| EO      | Environmental Officer                                                       |
| HAZCON  | Hazard of Construction                                                      |
| HAZOP   | Hazard and Operability Study                                                |
| HSSP    | Health and Safety Surveillance Plan                                         |
| INC     | Independent Nominated Consultant                                            |
| IP      | Industrial Participation                                                    |
| IR      | Industrial Relations                                                        |
| ISO     | International Standard Organisation                                         |
| ISPS    | International Ship and Port Facility Security Code                          |
| IPP     | Industrial Participation Policy                                             |
| IPO     | Industrial Participation Obligation                                         |
| IPS     | Industrial Participation Secretariat                                        |
| IRCC    | Industrial Relations Co-ordinating Committee                                |
| JSA     | Job Safety Analysis                                                         |
| CIRP    | <i>Contractor's</i> Industrial Relations Practitioner                       |
| MSP     | Microsoft Projects                                                          |
| Native  | Original electronic file format of documentation                            |
| PES     | Project Environmental Specifications                                        |
| PHA     | Preliminary Hazard Assessment                                               |
| PIRM    | Project Industrial Relations Manager                                        |
| PIRPMP  | Project Industrial Relations Policy and Management Plan                     |
| PLA     | Project Labour Agreements                                                   |
| PIRM    | Project Industrial Relations Manager                                        |
| PSPM    | Project Safety Program Manager                                              |
| ProgEM  | Programme Environmental Manager                                             |
| ProjEM  | Project Environmental Manager                                               |
| QA      | Quality Assurance                                                           |
| R&D     | Research and Development                                                    |
| SACNASP | South African Council for Natural Scientific Professions                    |
| SACPCMP | South African Council for Project and Construction Management Professionals |
| SANS    | South African National Standards                                            |
| SASRIA  | South African Special Risks Insurance Association                           |
| CESSG   | Contractor Environmental and Sustainable and Specification Guideline        |
| SHEO    | Safety, Health and Environment Officer                                      |
| TPT     | Transnet Port Terminals                                                     |

## 1.5 Existing Fence Layout - Google Maps

Existing fence layout which requires replacement is illustrated below, where red shows fence boundaries and green shows the gates.

### 1.5.1 Terminal Installation Sites (Google Maps)

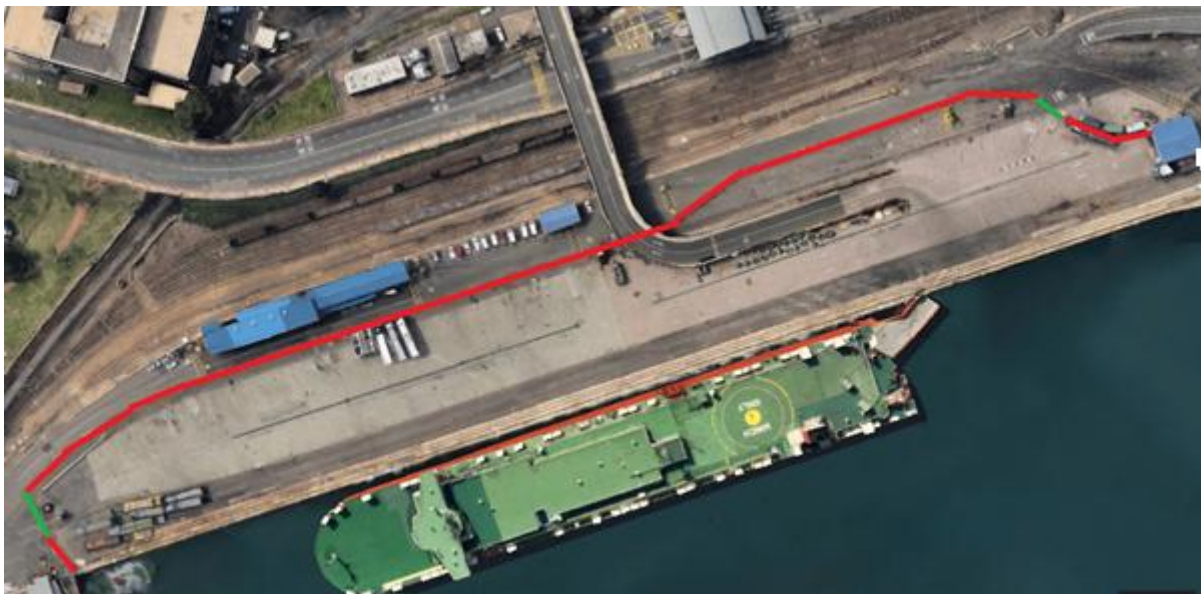


Figure 1: Q & R

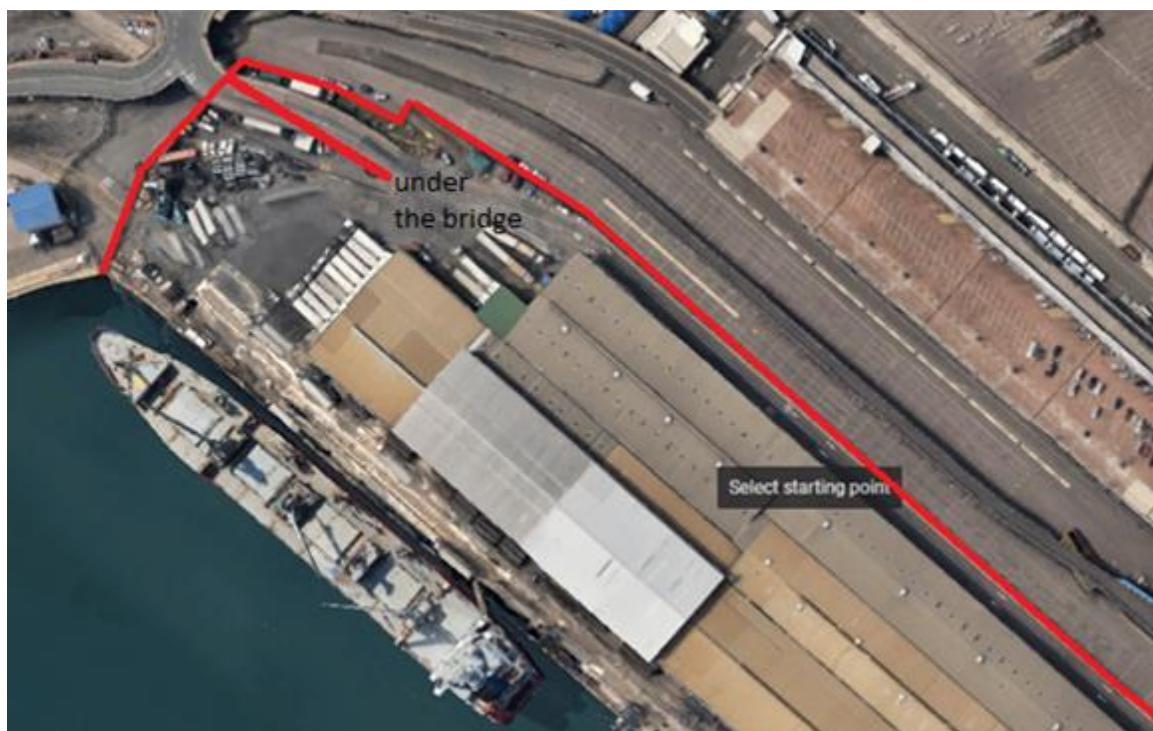


Figure 2: FPT

TRANSNET PORT TERMINAL  
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WHARF TERMINAL



Figure 3: Control Room



Figure 4: Concrete wall

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Figure 5: 111 Offices/ D gate



Figure 6: G Gate to C Berth



Figure 7: MPT Clinic

#### 1.5.2 Maydon Wharf Terminal Installation Sites (Google Maps)



Figure 8: Maydon Wharf (K-block)

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Figure 9: Maydon Wharf Berth 12

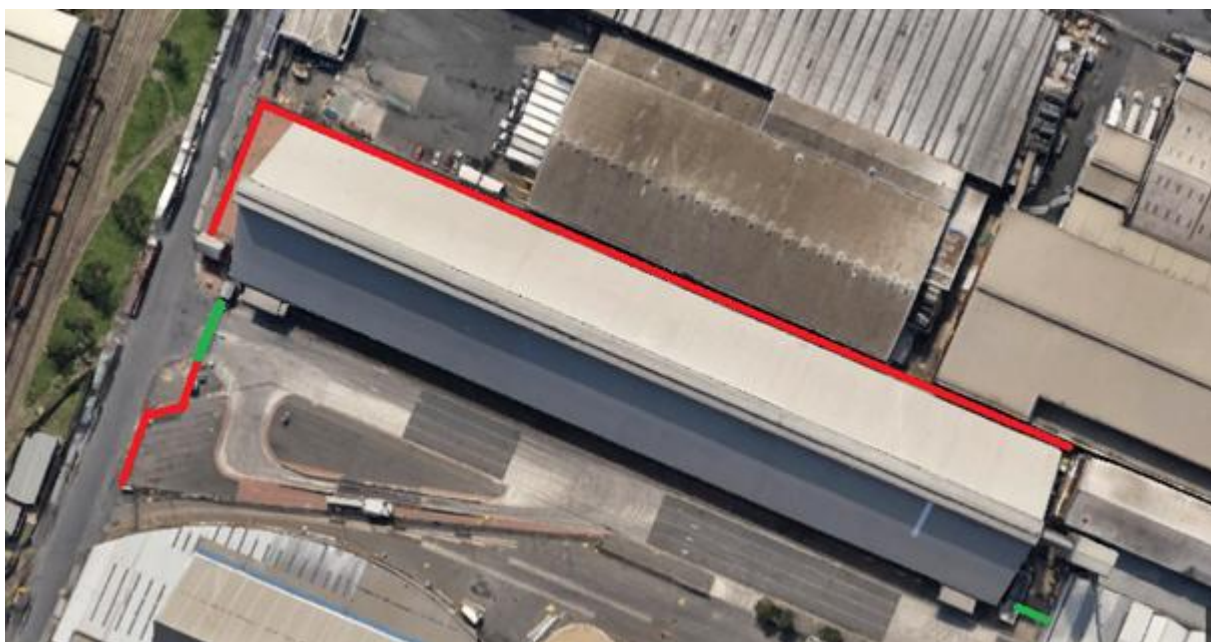


Figure 10: Maydon Main Entrance

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WHARF TERMINAL



Figure 11: Maydon Shed 12 M & A

### 1.5.3 Agri-Port Terminal Installation Sites (Google Maps)



Figure 12: Agri-Port

## 2 Engineering and the *Contractor's* design

### 2.1 *Employer's Responsibilities*

- a) No design is provided by the *Employer* (The *employer* has provide minimum guidelines).
- b) The *Employer's* performance requirements for the *works* are contained in the Works Information and all annexures thereto (Typical Transnet Drawings).
- c) The *Employer* grants the *Contractor* a licence to use the copyright in performance data presented to the *Contractor* for the purpose of the works ONLY.
- d) The *employer* has provided minimum requirements to be adhered to and used as guidelines during the procurement, designing and installation. The Contractors scope of Works shall include, but not limited to Typical Transnet Drawings.

### 2.2 *Parts of the works which the Contractor is to Design*

The *works* that the *Contractor* is to perform *involve* the design, supply, delivery, removal of old fence, installation, and commissioning of Perimeter Fence at BBC Terminal namely Durban Point Terminal, Agri-Port Terminal, and Maydon Wharf Terminal.

The major activities of the *works* include:

- a) The design, supply, and installation of hot dip galvanised steel palisade fencing (refer to Annexure - CAD PALISADE\_FENCE\_AMEND 9).
- b) The design supply, and installation of high security fence (refer to Annexure - General Specification for High Security Fence).
- c) The design, supply, and installation of steel palisade gates (swing and sliding) with shackles and padlocks
- d) The design supply and installation of turnstile gates.
- e) The supply and install hot dip galvanised concertina security razor wire
- f) Detection of existing underground services
- g) Excavation and provision for concrete footing/ base.
- h) Relocation and or diversion of existing services (electrical, communications, sewer, and water) when it is required.
- i) Careful removal of the existing fence (wire mesh, concrete slabs, and brickwork) and gates where required. Removal of the existing fence and installation of new fence must be done in parallel to seal off the area from impending threats and always provide physical security on the exposed sections during construction.
- j) **Note:** All steel material (fencing, gates, etc.) removed are to be stockpiled in an area identified in each terminal, for TPT's reverse logistics team to dispose of.

- k) Provide skips for waste management.
- l) Disposal of concrete fence waste as per municipality by-laws for concrete/ rubble waste disposal.
- m) The *Contractor* shall provide the *works* in accordance with the Technical, Health and Safety, Environmental, Quality, Industrial relations and Programming requirements as set out in the Works Information.

2.2.1 The *Contractor* is to design the following parts of the *works*:

- a) Steel Palisade Fence (Annexure - CAD PALISADE\_FENCE\_AMEND 9)
- b) Steel Palisade Gate (Annexure - CAD Palisade Swing Gate Details & Annexure - CAD Palisade Sliding Gate Details)
- a) High Security Fence (Annexure - General Specification for High Security Fence)
- c) Turnstile gates
- d) Concrete Foundations

2.2.2 Steel Palisade Panel

- a) Height: Not less than 2400mm above floor level, with an opening below fence (between fence and ground level) not exceeding 50mm.
- b) Post: Approximately 3000mm centres on the posts.
- c) Concrete strength: According to SANS 1200
- d) Vertical pales (palisades) of fencing to be angle iron, at least 40mm x 40mm, and at least 3mm thick.
- e) Top of pales to be profiled to have pointed / spiked finish.
- f) Vertically installed pales to be evenly distributed across each panel to ensure the opening between pales to not exceed 150 mm.
- g) Angle iron cross bars spanning between posts to be angle iron, at least 50mm x 50mm, and atleast 5mm thick. At least two cross bars per panel.
- h) Posts: To be square tubes of at least 75mm x 75mm, with a wall thickness of at least 2mm.
- i) Posts to be fitted with a suitable cap, epoxied into position to prevent easy removal, to seal pipe and prevent the ingress of water.
- j) Cross bars to be fixed to the posts by means of brackets. No holes are to be drilled into the posts.
- k) The palisade fence shall be made from hot dip galvanised steel.
- l) All bolt and nuts used in the assembly of the palisade fencing to be off the antivandal type or welds.

#### 2.2.3 Steel Palisade Gate

- a) Gate frames to be made from steel sections compatible to use with palisade panels i.e., match palisade fencing for uniformity.
- b) Height: Not less than 2400mm above floor level.
- c) Vertically installed pales to be evenly distributed across each panel to ensure the opening between pales to not exceed 150 mm.
- d) Concrete strength: According to SANS 1200
- e) Gates, Panels, Posts, Single bolts clamping plates, base plates, fasteners, and bolting must be fully galvanised for use in a marine environment and for extremely high corrosion resistance.
- f) Supply and install pedestrian gate that opens with an inward circular motion. Approximately 1,2m wide galvanized, lockable gates.
- g) Supply and install sliding gate that opens by sliding on the rail. Approximately 8m or 4m x 2 wide galvanized lockable sliding gates complete with rail. All gates to include strong/weight to gate ratio portals and tracks to be at least 75mm where gates are 4m and longer embedded in concrete. The guide wheels to be heavy duty as well due to weather, weight, and the port environment.
- h) Supply and install swing gate that opens inward circular motion. Approximately 8m or 4m x 2 wide galvanized lockable sliding gates.
- i) The gates to be of the same design as palisade panels for design continuity.

#### 2.2.4 High Security Fence

- b) Supply and install new high security fence (see through anti-cut, anti-climb and CCTV optimised and security patrol friendly wall), with required posts.
- c) Gates, Panels, Posts, Single bolts clamping plates, base plates, fasteners, and bolting must be fully galvanised for use in a marine environment and for extremely high corrosion resistance.
- d) Final colour to be moss green (RAL 6005).
- e) Concrete strength: According to SANS 1200.
- f) Refer to "General Specification for High Security Fence" on the annexures or provide a similar product.

#### 2.2.5 Turnstile

- a) It must be hot-dip galvanized to provide best corrosion protection and ensuring prolonged life (Outdoor).
- b) Suited for high volume access.
- c) Heavy-duty latch mechanism rotation locking mechanism.

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- d) Bi-directional operation with a manual access button.
- e) Suspended rotor.
- f) Self-centering rotation system.
- g) Mechanical key override - clockwise and anti-clockwise directions (fail-secure).
- h) Installed on top of a plinth and the plinth must be reinforced.
- i) Concrete strength: According to SANS 1200

### 2.2.6 Concertina Flat Razor Wire

- a) It must be hot-dip galvanized to provide best corrosion protection and ensuring prolonged life.
- b) 500mm Coil Diameter Galvanized Concertina Flat Wrap Razor Wire.
- c) The installation requires additional hot dip galvanised vertical uprights supports.
- d) Flat wrap

2.2.7 All required temporary works. Temporary works are all works other than the permanent *works* which shall be removed from the Site on Completion of the *works*.

2.2.8 Further details of design and performance requirements for the parts of the *works* which the *Contractor* is to design are provided in the relevant technical specifications included within annexures which forms part of this Works Information

2.2.9 The *Contractor* shall appoint suitably qualified and experienced designers to carry out such work and shall indemnify and hold indemnified the *Project Manager* and *Employer* against any claims and actions that may arise out of his designs.

2.2.10 All designs/calculations must be done by an authenticated and authorized Professional Engineer/Professional Technologist registered with the Engineering Council of South Africa. The *Contractor* shall submit to the *Project Manager* details of the Professional Engineer/Professional Technologist registered with the Engineering Council of South Africa prior to starting any design of temporary or permanent works. The *Contractor* shall submit to the *Project Manager* for acceptance all design calculations and drawings for all temporary and permanent works.

2.2.11 The *Contractor* shall be responsible for full compliance with all codes of practice, safety, professional procedures, checking, Site approval and requirements of the construction regulations with regards to all works including developing and submitting maintenance plans for acceptance by the *Project Manager* for all works designed by the *Contractor*.

2.2.12 Unless expressly stated to form part of the design responsibility of the *Employer* as stated under clause 2.1 and whether or not specifically stated to form part of the design responsibility of the *Contractor* under this clause 2.2, all residual design responsibility and overall responsibility for the total design solution for the *works* rests with the *Contractor*.

## 2.3 Procedure for submission and acceptance of *Contractor's* design

2.3.1 The *Contractor* shall address the following procedures:

- All designs done by the *Contractor* must comply with all relevant SANS and SABS must be approved by Professional registered personnel with ECSA.
- A hardcopy of the design, approved by Professional registered personnel with ECSA, must be supplied to the *Project Manager* for approval.
- After the approval both a hard copy of the design as well as USB with Adobe Acrobat (PDF) and "Native" file format of the design must be supplied to the *Project Manager*.

Acceptance of documentation by the *Project Manager* in no way relieves the *Contractor* of his professional indemnity responsibility for the correctness of information, or conformance with the requirements of the Works Information. This responsibility rests solely with the *Contractor*.

## 2.4 Review and Acceptance of *Contractor* Documentation

2.4.1 The *Contractor* submits documentation as the 'Works Information' requires to the *Project Manager* for review and acceptance.

The Approval of relevant documents will have a lead time of ten (10) working days for acceptance by the *Project Manager*.

In undertaking the 'Works' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of TPT Document Control.

## 2.5 Use of *Contractor's* design

2.5.1 The *Contractor* grants the *Employer* a licence to use the copyright in all design data presented to the *Employer* in relation to the *works* for any purpose in connection with the construction, re-construction, refurbishment, repair, maintenance, and extension of the *works* with such licence being capable of transfer to any third party without the consent of the *Contractor*.

2.5.2 The *Contractor* vests in the *Employer* full title guarantee in the intellectual property and copyright in the design data created in relation to the *works* as follows:

- The *Contractor* grants the *Employer* a licence to use the copyright in all design data presented to the *Employer* in relation to the *works* for any future tenders and construction of modular facilities.

## 2.6 Design of Equipment

2.6.1 The principal Equipment categories deployed for the *Contractor* to provide the *Works* require its design to be accepted by the *Project Manager* under **ECC Clause 23.1**

## 2.7 As-built drawings, operating manuals, and maintenance schedules

2.7.1 The *Contractor* provides the following:

- a) As Built /Final Documentation

- b) Plan view from start to end and left to right hand boundaries is required.
- c) All elements are to be on separate layers. Example, points, codes, and elevation are to be on separate layers. Every different element is to be on a separate layer. Note that no "z" values are to be saved to any lines or points.
- d) Topographical survey shall be provided in the form of hard copies to a scale of 1:500 as well as a magnetic medium in a format assessable by Microstation and AutoCAD (.dwg and/or .dxf format) on a USB.
- e) In undertaking the works (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the Contractor Document Submittal Requirements Standard included in the Annexures (Refer DOC-STD-0001 Rev 03).
- f) All Red Line information to be signed off by *Contractor's* responsible Professional Engineer/Technologist before issue to the *Project Manager*.

2.7.2 Installation, Maintenance and Operating Manuals and Data Books

- a) The *Contractor* provides manuals in an A4 hard covered, red, grease and waterproof binder, using 2 ring type binders. The manuals are well indexed and user friendly and include a summarized Table of Contents.
- b) Drawings and charts larger than A4 are folded and those greater than A3 are enclosed in an A4 plastic pocket of adequate strength.
- c) The *Contractor* submits the draft Table of Contents to the *Project Manager* for acceptance prior to the compilation and official submittal of the manuals.
- d) The originals of all brochures shall be issued to the *Project Manager*. When a general brochure is applicable to a range of equipment, then the specific item, catalogue number or model number shall be stated, which is best achieved by introducing a separate index page, which cross-references the specific item to a tag number.
- e) The address, phone numbers, fax numbers and reference numbers of all Subcontractors is provided.
- f) Where manuals include drawings that still need to be revised to "As-Built" status, and such manuals are required prior to 'As-Built' status, the manual will not be considered to be in its final form until the "As-Built" version of each such drawing has been incorporated.
- g) The required number of copies of the manual (s) shall be as specified by the *Project Manager* and submitted per type or model number of equipment included in the contract, or as specified by the *Project Manager*.
- h) All electronic copies (pdf.) of Data Packs to be properly indexed.
- i) A typical example of what the binder/file (s) shall be marked with on the spine and the front cover is as follows: -
  - Project Name
  - Manual Title, e.g. Installation, Maintenance and Operating Manual

- Title
  - Manual Numbering (e.g. Volume 1 of 2, etc.)
  - Contract Number
  - *Contractor* Name
- j) Unless otherwise stated elsewhere the required number of copies of as built/Final documents/drawings shall be:
- 2 x hard copies (full size)
  - USB with Adobe Acrobat (PDF) and "Native" file format.

### 3 Construction

#### 3.1 Temporary works, Site services & construction constraints

##### 3.1.1 *Employer's* Site entry and security control, permits, and Site regulations

- The *Contractor* complies with the *Employer's* Site entry and security control, permits, and Site regulations.
- The *Contractor* arranges for ID cards to all *Contractors'* employees for access/egress of personnel (and Equipment) within the Site boundaries.

##### 3.1.2 The *Contractor* complies with the following requirements of the *Employer*:

- a) All *Contractor* staff entering the Transnet Port Terminal (TPT) facility will undertake an alcohol breathalyser on a daily basis
- b) All relevant PPE must be worn by Site personnel when entering the Port.
- c) All vehicle permits must be obtained prior to site access
- d) All relevant personnel inductions must be done prior to site access being granted.

##### 3.1.3 Restrictions to access on Site, roads, walkways, and barricades

- a) The *Contractor* is specifically excluded from entering the *Employer's* Operational Areas which are adjacent to the Site and Working Area. The *Contractor* plans and organises his work in such a manner so as to cause the least possible disruption to the *Employer's* operations (Where required, the contractor to provide Traffic Management)
- b) The *Contractor* ensures the safe passage of *Contractor's* traffic to and from the Site and Working Areas at all times that includes providing flagmen, protective barriers, signage, etc. for the protection, direction, and control of traffic.
- c) The *Contractor* ensures that none of his personnel and Equipment will be allowed to move outside of his allocated Site and Working Areas. To this end, access routes are allocated and co-ordinated by the *Project Manager*.
- d) The *Contractor* ensures that all his construction personnel and Equipment remains within his allocated and fenced off construction area.

- e) The *Contractor's* personnel working within Transnet Port Terminal complies with Transnet National Port Authority (TNPA) operational safety requirements and are equipped with all necessary PPE, high visibility apparel and, when working within two meters of the quay wall, floating apparel (To be supplied by the contractor)
- 3.1.4 The *Contractor* complies with the following requirements of the *Employer*:
  - a) Access permissions and restrictions for all personnel and equipment will apply
  - b) All personnel to remain within the site boundary at all times
- 3.1.5 People restrictions on Site; hours of work, conduct and records:
  - a) The working hours shall be in accordance with the requirements of the Department of Labour or with the agreement of the relevant trade unions. This information relating to working hours shall be supplied to the Project Manager prior to commencement of the proposed working hours.
  - b) In the event that the Contractor requests to work overtime to make up for time lost due to his own delays, the Contractor will be liable for the supervision cost required from The Employer's team during The Works.
  - c) The Contractor complies with a nine (9) hour a day, five (5) day a week standard workday/week for all activities to be undertaken by his people (including Sub-Contractors) employed on site.
  - d) The *Contractor* keeps daily records of his people engaged on the Site and Working Areas (including Subcontractors) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.
- 3.1.6 Health and safety facilities on Site to comply with the OSH ACT.
- 3.1.7 The *Contractor* provides a notice board in terms of Transnet requirements at a location to be approved by the *Project Manager* on site.
- 3.1.8 The *Contractor* provides progress photographs at weekly intervals in electronic format to the *Project Manager*.
- 3.1.9 The *Contractor* does not advertise the contract or the project to any third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the *Project Manager*.
- 3.1.10 Site services and facilities:
  - a) For the duration of the Contract, the *Project Manager* will provide an area, free of charge, of the *Contractor* to establish his offices, lay down areas, stores, workshops, and other *Contractor's* Equipment when needed.
  - b) No connection to the sewer system will be made available to the *Contractor*, therefore a *Contractor* shall provide portable chemical type toilets for use on site by his people.
  - c) All costs for preparation of the site establishment area are for the *Contractor's* account.

- d) The *Contractor* is responsible for his own connection to the *Employer's* services and for the reticulation of his services from the connection point. The cost of meters, connections, reticulation, and all other usage costs associated with the provision of services are for the *Contractor's* account.
- e) The *Contractor* provides, at his own cost, a sufficient number of toilets and maintains them in a clean and sanitary working condition. Safe disposal certificates to be obtained for all waste removed.
- f) The *Supervisor* (or his nominated representative) conducts routine inspections of the *Contractor's* construction power reticulation and power tools. If found to be un-safe and / or non-compliant with statutory requirements, the electrical power supply is disconnected until the Contractor rectifies all defaults.
- g) The *Contractor* provides temporary lighting and fencing around every section occupied by him during the construction of the works in accordance with the Traffic Management Plan.
- h) Such fencing demarcates and secures the construction area. The fencing is erected before any work starts and is removed only upon completion of the work in the area.
- i) The *Contractor* includes for all costs for such lighting and fencing, including access control into and out of these restricted areas.
- j) Wherever the *Contractor* provides facilities (either his own or for the *Project Manager* and/or *Supervisor*) and all items of Equipment, involving, *inter alia*, offices, accommodation, laboratories, Materials storage, compound areas etc, within the Working Areas, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.
- k) Upon completion, and within one month of the date of acceptance of the works, the *Contractor* completely removes from the Site and Working Area all his Equipment, including the foundations of any structures, stores, office accommodation or any other asset belonging to him, and leaves the Site and Working Areas in a tidy condition to the satisfaction of the *Project Manager*.
- l) No excess or discarded materials or Equipment may be buried or dumped within the port boundary.
- m) Demolition of all temporary structures, surfaces, etc., shall be first approved by the *Project Manager* prior to the work being carried out.
- n) The *Employer* does not provide any security for the Site and Working Areas. The *Contractor* provides same and indemnifies and hold indemnified the *Project Manager* and *Employer* against any claims and actions that may arise out of Site and Working Areas security.

- o) No housing is available for the *Contractor's* employees. The *Contractor* makes his own arrangements to house his employees and transports them to site in a closed vehicle specifically designed for passenger transport (bus or similar), accepted by the *Project Manager*.
    - p) The *Contractor* shall provide everything else necessary for Providing the Works.
- 3.1.11 Wherever the *Employer* provides facilities (including, *inter alia*, temporary power, water, waste disposal, telecommunications etc) for the *Contractor's* use within the Working Areas and the *Contractor* adapts such facilities for use, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the *Employer*.
- 3.1.12 Facilities provided by the *Contractor*:
  - The *Contractor* ensures that this site establishment area is compliant with the relevant safety regulations and restrictions, is clearly sign posted, and has a suitable security fence, lighting, and the necessary access control gates.
- 3.1.13 Wherever the *Contractor* provides facilities (either his own or for the *Project Manager* and/or *Supervisor*) and all items of Equipment, involving, *inter alia*, offices, accommodation, laboratories, Materials storage, compound areas etc, within the Working Areas, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.
- 3.1.14 Unless expressly stated as a responsibility of the *Employer* as stated under 3.1.10 Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the *Contractor* to Provide the Works remains the responsibility of the *Contractor*.
- 3.1.15 Underground services, other existing services, cable, and pipe trenches and covers
  - a) Where the *Contractor* encounters existing underground services or existing service cables, the *Contractor* undertakes the following:
  - b) The *Contractor* is required to liaise with the *Project Manager*, and the Supervisor and *The Employer's* Engineers, and establish as accurately as possible the location of the various existing services situated within the Work Area and record all such information on a suitable "marked-up" drawing for reference at all times.
  - c) In addition to the above, the *Contractor* shall consult the *Project Manager*, the Supervisor and *The Employer's* Engineers, prior to undertaking any excavation work.

- d) Where the *Contractor* encounters existing underground services / existing services cables / pipe trenches, the *Contractor* is to notify the *Project Manager*, the Supervisor and *The Employers* Engineers.
- e) Where the encountered services are causing a delay in the provision of *The Works*, the *Contractor* shall approach the *Project Manager*, the Supervisor and *The Employer's* Engineers for a decision by submitting a Field Engineering Query (FEQ), including his recommendations.
- f) The *Contractor* shall then provide the solution described in the answered FEQ.
- g) The *Contractor* must thereafter exercise due care and attention in carrying out the agreed excavation Works and any Works as may be directed by the *Project Manager* to avoid damage or disruption to existing services.
- h) The *Contractor* shall be liable for all claims arising out of any damage caused by such excavation if the *Contractor* fails to exercise the requisite care and attention in carrying out the excavation.
- i) The cost of locating and protecting, if necessary, services shall be included in the rates for the services intersecting and adjoining the trenches.
- j) A group of cables intersecting or adjoining a trench will be regarded as one service.
- k) The existing services shall be protected when excavating.
- l) The costs of protecting these services shall be included in the rates for excavation and compaction.
- m) All existing services shall be treated as in service and "live". All necessary Safety Instructions of *The Employer* and statutory requirements as per the OHS Act and its Regulations shall be complied with in the handling of the "live" service.
- n) In the case of electrical services, the *Contractor* shall trace, locate, and identify all cables within the service and record the information as per this Works Information above.

#### 3.1.16 Control of noise, dust, water, and waste

- a) Before moving Equipment onto the Site and Working Areas and commencing The Works, the *Contractor* submits his proposed methods of construction (In accordance with TIMS Environment and Sustainability Contractor Specification Guideline) which demonstrate the measures taken to avoid and or reduce any environmental and health issues arising from dust, noise, and vibration for acceptance by the Project Manager.
- b) The Contractor shall comply with the requirements of "Environmental constraints and management" of Section C3.1 Employer's Works Information.
- c) The Contractor shall comply with the requirements of "Safety risk management" of Section C3.1 Employer's Works Information.

- d) The *Contractor* is to provide dust suppression as per the SOP: CEM, CESSG and PES documents to ensure that dust levels resulting from the *Contractor's* construction traffic are kept to the required safety and environmental standards as specified in the relevant project environmental specifications.

#### 3.1.17 Excavations and associated water control

- a) Where applicable, the *Contractor* protects all excavations against any water ingress whether by seepage, rains, storms, floods, or any other means.
- b) Where applicable, the *Contractor* immediately removes any water found in the excavation by pumping and / or bailing provided the removal of water complies with the National Water Act (Act 36 of 1998) and provides all necessary Equipment (pumps, pipes, etc.) to do so.
- c) Water is cleared in such a way that it cannot seep or flow back into the excavations.
- d) The *Contractor* shall install shoring where necessary, and in all deep excavations to ensure that the sides of the excavation does not collapse.
- e) The *Contractor* shall comply with *The Employer's* TIMS Policy Commitment Statement in all respects for the Provision of *The Works* involving deep excavations.
- f) All activities related to excavations and water control forms part of this contract, and the *Contractor* shall make allowance for these activities in his Price and Programme.

#### 3.1.18 Giving notice of work to be covered up:

- a) The *Contractor* notifies the *Supervisor* in writing of any elements of The Works which are to be covered up. This notification is given not less than 48 (forty-eight) hours prior to the proposed covering up.
- b) The *Contractor* shall not cover The Works without the authorization of the Supervisor.
- c) The Contractor shall make the *Project Manager* and Supervisor aware of any tests and inspections required by The *Employer's* Quality Management Procedures. Notification of required test and/or The *Employer's* Engineers inspections to be given 24 (twenty-four) hours in advance.

## 3.2 Completion, testing, commissioning, and correction of Defects

#### 3.2.1 The work to be done by the Completion Date.

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work listed below has been done and is also free of Defects,

which would have, in his opinion, prevented the *Employer* from using the works and others from doing their work.

| Item of work                                                                  | To be completed by                                |
|-------------------------------------------------------------------------------|---------------------------------------------------|
| Submission of all data packs, quality assurance records and as-built drawings | Within two weeks after completion of construction |

- 3.2.2 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of As-built documents that represent the Works and Layouts status of the completed to present to the *Employer*.

## 4 Plant and Materials Standards and Workmanship

### 4.1 Civil Engineering and Structural Works

- 4.1.1 The SANS 1200 Series of Specifications are applicable to all Civil Engineering and Structural works associated with this contract. The following interpretations and meanings shall apply:
- 4.1.2 In case of any conflict in interpretation, ambiguity, or discrepancy between any SANS 1200 Specification (whether standard or written as a particular project specification) contained in the *Works* Information and the conditions of contract, the conditions of contract take precedence within the ECC contract.
- 4.1.3 In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 Specification (whether standard or written as a particular project specification) contained in this paragraph 4.3 of the *Employer's Works* Information and specific statements contained elsewhere in C3.1 *Employer's Works* Information, the specific statements contained elsewhere shall prevail, without prejudice to the *Project Manager's* express duty to resolve any ambiguity or inconsistency in the *Works* Information under ECC Clause 17.1.
- 4.1.4 Within SANS 1200 A: GENERAL, the following amendments and interpretations shall apply:
- Where the word or expression "Employer" is used, read "*Employer*";
- Where the word or expression "Contractor" is used, read "*Contractor*";
- Where the word or expression "Engineer" is used, read "*Project Manager*" or "Supervisor" as the context requires;



Where the word or expression "schedule of quantities" is used, this is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein);

4.1.5 Within SANS 1200 A: GENERAL 2.3 DEFINITIONS, the following apply:

"Acceptable. Approved (Approval)" is interpreted as either a *Project Manager* or a *Supervisor* communication or instruction in relation to Works Information compliance, consistent with the *conditions of contract* as the context requires;

"Adequate" is deleted. The *Project Manager* notifies the *Contractor* where the *Contractor* has not complied with the *Works Information*;

"Measurement and payment" and the further definitions contained within 6.3 c) are deleted. Assessment and payment is in accordance with the conditions of contract (and the ECC main and secondary options stated therein);

4.1.6 Within SANS 1200 A: GENERAL 2.6 APPROVAL, the following applies:

"Approval" by either the *Project Manager* and/or the *Supervisor* is without prejudice to ECC Clause 14.1 and, inter alia, ECC Clauses 13.1, 14.3 and 27.1.

4.1.7 SANS 1200 A: GENERAL 2.8 ITEMS IN SCHEDULE OF QUANTITIES, is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein).

4.1.8 SANS 1200 A: GENERAL 3.2 STRUCTURES AND NATURAL MATERIAL ON SITE, applies only to the extent that it is consistent with paragraph 3.1.6 of C3.1 *Employer's Works Information*.

4.1.9 Within SANS 1200 A: GENERAL 7.1 PLANT, the following applies:

Where the word or expression "Plant" is used, read "Equipment".

4.1.10 SANS 1200 A: GENERAL 7.2 CONTRACTOR'S OFFICES, STORES AND SERVICES, applies but the *Project Manager* resolves any inconsistency with statements included within paragraph 3.1.12 of C3.1 *Employer's Works Information*.

4.1.11 SANS 1200 A: GENERAL 3.1 SURVEY, applies only to the extent that it is consistent with paragraph 3.1.14 of C3.1 *Employer's Works Information*.

4.1.12 Within SANS 1200 A: GENERAL 3.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS, the following applies:

Where the word or expression "specification" is used, read "Works Information".

4.1.13 SANS 1200 A: GENERAL 3.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES applies only to the extent that it is consistent with the specific statements made elsewhere in C3.1 *Employer's Works Information* and in any case and at all times consistent with the *conditions of contract*.

4.1.14 Within SANS 1200 A: GENERAL 5 TESTING, the following applies:

Where the word or expression "Engineer" is used, read "*Supervisor*".

- 4.1.15 SANS 1200 A: GENERAL 8 MEASUREMENT AND PAYMENT, is deleted in entirety. Assessment and payment is in accordance with the conditions of contract (and the ECC main and secondary options stated therein).
- 4.1.16 The principles, meanings and interpretation stated and established within paragraphs 6.3.1 to 6.3.15 with respect to SANS 1200 series and to SANS 1200 A: GENERAL equally apply to the other SANS 1200 specification references used within this paragraph 6.3 of C3.1 *Employer's Works Information*.
- 4.1.17 Demolition and earthworks:  
This part covers the demolition of the existing fence at Durban Point, Agri-port and Maydon Wharf Terminals for the construction of the *works*.

**a) Supporting Specifications**

This specification must be read in conjunction with the following specifications:

SANS 1200 DA: Earthworks (small works)

SANS 1200 MF: Base

**b) Making good of existing surfaces**

The *Contractor* shall ensure that all surfaces that are damaged during the construction are to be repaired to a satisfactory condition and to match the existing surface. Any damage to the adjacent surfaces shall be repaired by the *Contractor* to the satisfaction of the *Project Manager*.

**c) Materials**

All vegetation, trees, etc. resulting from site clearance shall be removed off site to a disposal dump to be selected by the *Contractor*. The haulage, dump costs and any levies etc. shall be deemed to be included in his tendered rates. Burning of materials on site shall not be permitted.

**d) Cement**

Common cements, complying with SANS 50197-1 shall be used for all concrete work. On no account shall masonry cements be used for concrete work, even if the strength designations are the same as for common cements.

**e) Coastal Zone**

In this application, which is within one kilometre of the sea, one or more of the following Portland cementations binders shall be used in all applications:

Blast furnace cement, Type III/A, certified as containing not less than 40% and not more than 50% milled granulated blast furnace slag (MGBS), or a blend of Type 1 Portland cement with not less than 40% and not more than 50% MGBS. MGBS shall comply with SANS 1491 Part 1.

Fly ash cement Type II/B-V or Portland fly ash cement Type II/B-W, certified as containing not less than 25% and not more than 30% fly ash shall comply with SANS 1491 Part 2.

**f) Alkali Reactive Concrete**

Alkali Reactive Aggregates shall not be used in this project. The equivalent  $\text{Na}_2\text{O}$  content of the concrete shall not exceed  $2,0 \text{ kg/m}^3$  where  $\% \text{ Na}_2\text{O equivalent} = \% \text{ Na}_2\text{O} + (0,658 \times \% \text{ K}_2\text{O})$ .

**g) Aggregates**

Fine and coarse aggregate shall comply with the relevant clauses of SANS 1083.

Where aggregates have constituents, which, in the opinion of the *Supervisor*, may give rise to damage due to alkali-aggregate reactions, the provisions of PS: C2.3 shall be applicable.

Evidence of compliance of the aggregates with the requirements of PS: C3.1 & C3.2 shall be furnished as early as practical. If required by the *Project Manager*, the *Contractor* shall submit 40 kg samples for approval at least 6 weeks prior to the start of concrete construction. No aggregate shall be delivered for use in the works until approval is given.

**h) Curing Period**

The curing period for concrete containing only CEM 1 shall be 7 days.

The curing period for concrete containing CEM 1 plus cement extenders (MGBS, FA) shall be 10 days.

The curing period will start on completion of the concrete pour and for formed surfaces shall include the time for which forms are still in place after the pour.

## SECTION 2

### 5 Management and start up

- a) It is the *Employer's* specific intention that the Parties and their agents use the techniques of partnering to manage the contract by holding meetings designed to pro-actively and jointly manage the administration of the contract with the objective of minimising the adverse effects of risks and surprises for both parties.
- b) Depending on the size and complexities of the Works, it is probably beneficial for the Employer to hold a weekly risk register meeting (Clause 16.2). This could be used to discuss safety, environmental, compensation events, subcontracting, overall co-ordination, and other matters of a general nature. Separate meetings for specialist activities such as programming, engineering, and design management, may also be warranted.

#### 5.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:



| <b>Title and purpose</b>               | <b>Approximate time &amp; interval</b>          | <b>Location</b>   | <b>Attendance by:</b>                                                                 |
|----------------------------------------|-------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|
| Risk register and compensation events  | Weekly on (or at shorter intervals if required) | On site / Virtual | <i>Project Manager, Supervisor, Contractor, and appropriate key persons</i>           |
| Overall contract progress and feedback | Every two weeks                                 | On site / Virtual | <i>Employer, Project Manager, Supervisor, Contractor, and appropriate key persons</i> |
| Technical Meetings                     | Every two weeks                                 | On site / Virtual | <i>Project Manager, Supervisor, Contractor, and appropriate key persons</i>           |
| Planning Meetings                      | Weekly                                          | On site / Virtual | <i>Employer, Project Manager, Supervisor, Contractor, and appropriate key persons</i> |

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature, and the progress of the *works*. Records of these meetings are to be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

All meetings are to be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register are not to be used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

## 5.2 Documentation Control

- a) In undertaking the *works* all documentation requirements for the *works* shall be dealt with in accordance with document DOC-STD-0001 – Rev03 (*Contractor* Documentation Submittal Requirements). The control, maintenance and handling of these documents and drawings, using a suitable document control system, remain the sole responsibility of the *Contractor*.
- b) TPT's Project Document Controller will take the responsibility for the management of all technical and non-technical documentation throughout the life cycle of the Project. All documentation produced for and on behalf of the project will be registered with document control and its management thereof.
- c) This will include the registration, classification, managing, scanning, tracking, filing, storing, distribution and filing of all hardcopy and electronic documentation generated for and on behalf of the project.

## TRANSNET PORT TERMINAL

CONTRACT NUMBER: ICLM HQ XXX/TPT

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF BBC PERIMETER FENCE FOR TRANSNET SOC LTD (REG.NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AT THE PORT OF DURBAN POINT TERMINAL (MPT), AGRI-PORT AND MAYDON WHARF TERMINAL



- d) All documentation and data created for the Project shall be numbered and named according to the TPT Codification Procedure. Such numbering is only available from the Project's Document Control Group.
- e) All contract correspondence is issued through document control. All communication to submitted electronically and is to be addressed to the Project Manager and Transnet Port Terminals Doc Control mailbox at all times email: [DBNDocControl@transnet.net](mailto:DBNDocControl@transnet.net)
- f) Each supplier of documentation and data to the Project is responsible for ensuring that all documentation and data submitted conforms to the Project Standards and data Quality requirements in terms of numbering, uniqueness, quality, accuracy, format, completeness, and currency of information. Data not meeting the Project Standards and data Quality requirements will be cause for rejection and returned to the *Contractor* for corrective action and re-submission.
- g) Should any change be made to documentation or data, which has already been submitted to the Project, then new or revised documentation or data shall be issued to Doc Control [DBNDocControl@transnet.net](mailto:DBNDocControl@transnet.net) to replace the out-dated information.
- h) It is the responsibility of all Project participants undertaking work on the Project to ensure they obtain and comply with the relevant requirements to suit their deliverables and Scope of Work.
- i) Electronic files submitted to the Project shall be clear of known viruses and extraneous "macros". The supplier of documentation is required to have, at all times, the latest generation of virus protection software and up-to-date virus definitions.
- j) The *Contractor* is to ensure that the latest versions of the required application software and a suitable 'IT' Infrastructure are in place to support the electronic transmission of documentation. Eg One drive should be used for document submission that exceed the email space requirement.
- k) The *Contractor* shall be responsible for the supply of all Sub-Supplier/*Contractor*/Manufacturer, etc. documentation and data related to their package of work and shall ensure that these Sub-Suppliers have the capability to supply the necessary documentation and data in the required time-frame and quality as outlined in the specified standards prior to awarding sub-orders.
- l) The required number of copies shall as a minimum be three (3) (1x original + 2 x hard copies), with the corresponding electronic PDF and 'Native' file formats upon final submission.
- m) The *Contractor* shall apply "wet signatures" to the original Documentation before scanning the signed original and prior to formal submission to the Project.
- n) Final issues of all documentation shall be supplied to the Project in "wet signature" format along with the associated corresponding electronic 'native files' and PDF renditions.

The *Contractor* shall ensure adequate resources are available to manage and execute the Document Control function as per the requirements of the Project. (*The Contractor* shall ensure that a dedicated Document).

## 5.3 Safety risk management

### 5.3.1 Health and Safety Standard

- The *Contractor* must comply with the requirements of the Project Health and Safety Specification – PHSS-0001 and OHS Act No. 85 of 1993 and its applicable Regulations.

### 5.3.2 *Contractor's* General Requirements for Health and Safety

The *Contractor* is solely responsible for carrying out the work under the Contract having the highest regard for the health and safety of its employees, Transnet's employees and persons at or in the vicinity of the Site, the *works*, temporary work, materials, the property of third parties and any purpose relating to the *Contractor* carrying out its obligations under this Contract.

The *Contractor* must initiate and maintain safety precautions and programs to conform to all applicable Health and Safety laws or other requirements, including requirements of any applicable government instrumentality and client corporate, business unit and site requirements. The *Contractor* must, at its own cost, erect and maintain safeguards for the protection of workers and the public. The *Contractor* must manage all reasonably foreseeable hazards created by performance of the work. The *Contractor* must:

- Provide all things and take all measures necessary for maintaining proper personal hygiene, ensuring safety of persons and property and protecting the environment at or near the Site.
- Avoid unnecessary interference with the passage of people and property at or near the Site.
- Prevent nuisance and excessive noises and unreasonable disturbances in performing the Services.
- Be responsible for the adequacy, stability and safety of all of its site operations, of all its methods of design, construction and work and be responsible for all of the work, irrespective of any acceptance, recommendation or consent by TPT, its *Contractors*, employees, agents and invitees, or any Government Body.

Costs for the above are borne by the *Contractor*.

The *Contractor* must comply and is responsible for ensuring that all of its Subcontractors comply with the relevant legislation(s) and statutory regulations for health and safety, the Transnet Health and Safety requirements included in the Contract and other document pertaining to health & safety contained in the Programme Health & Safety Management

System and include standards, policies, procedures, guidelines and safe work instructions.

#### 5.3.3 Contractor's Health and Safety Management

The *Contractor* must prepare, implement and maintain a project-specific Health and Safety Management Plan. The plan must be based on the requirements set out in this Project Health and Safety specification as well as all applicable legislation. It must cover all activities that will be carried out on the project site(s), from mobilisation and set-up through to rehabilitation and decommissioning.

The plan must demonstrate the *Contractor's* commitment to health and safety and must, as a minimum, include the following:

- a) A copy of the *Contractor's* Health and Safety Policy; in terms of the OHS Act section 7;
- b) Procedures concerning Hazard Identification and Risk Assessment, including both Baseline and Task-Based Risk Assessments;
- c) Arrangements concerning the identification of applicable Legal and Other Requirements, measures to ensure compliance with these requirements, and measures to ensure that this information is accessible to relevant personnel;
- d) Details concerning Health and Safety Objectives – a process must be in place for setting objectives (and developing associated action plans) to drive continual improvement;
- e) Details concerning Resources, Accountabilities and Responsibilities – this includes the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements, including the appointment of a *Project Manager*, Health and Safety Officers, *Supervisors*, Health and Safety Representatives, and First Aiders;
- f) Details concerning Competence, Training and Awareness – a system must be in place to ensure that each employee is suitably trained and competent, and procedures must be in place for identifying training needs and providing the necessary training;
- g) Communication, Participation and Consultation arrangements concerning health and safety, including Toolbox Talks, Daily Safe Task Instructions, project health and safety meetings, and notice boards;
- h) Documentation and Document Control – project-specific documentation required for the effective management of health and safety on the project must be developed and maintained, and processes must be in place for the control of these documents;
- i) Processes and procedures for maintaining Operational Control, including rules and requirements (typically contained in Safe Work Procedures) for effectively managing

health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, etc.;

- j) Emergency Preparedness and Response procedures;
- k) Management of Change – a process must be in place to ensure that health and safety risks are considered before changes are implemented;
- l) Sub-*Contractor* Alignment procedures – a process must be in place for the assessment of Subcontractors and suppliers with regard to health and safety requirements and performance (before any contract or purchase order is awarded);
- m) Measuring and Monitoring plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. noise, dust, etc.) in order to determine the effectiveness of control measures;
- n) Incident Reporting and Investigation procedures describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis;
- o) Non-conformance and Action Management procedures concerning the management of corrective actions;
- p) Performance Assessment and Auditing procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, and daily site health and safety inspections; and
- q) Details concerning the Management Review process followed to assess the effectiveness of health and safety management efforts.
- r) The *Contractor* shall comply with OH&S Act – Section 8, 9, 13 and 16 and the Construction Regulations 2014.
- s) The *Contractor* must nominate and appoint a responsible person on site to whom the *Project Manager* may refer in connection with the *works*. Persons are nominated for all shifts worked or whilst any activity relating to the Contract is being performed on site, and must have the authority to bind the *Contractor* with respect to the Contract. (OH&S Act - 16 Section (2)).
- t) The *Contractor* must ensure that the performance of all specified *works* is supervised throughout by a sufficient number of qualified and competent appointed representatives of the *Contractor*, who have experience in the type of work specified. (OH&S Act – Construction Reg. 8 (1) and 8 (2).)
- u) Note: No work may commence and or continue without *Supervisory* Appointees present on site. The *Contractor's* Site *Supervisor* must be equipped with a mobile telephone with message bank and/or pager or an equivalent communication device so that communication throughout the Contract can be maintained at all times.

- v) The *Contractor's Site Supervisor* must provide a list of names and contact telephone numbers of all *Contractors* and Subcontractor's contact persons on Site. This list is updated as a new *Contractor* or Subcontractor employee commences on Site.
- w) The *Contractor's Site Supervisor* must keep a record of all employees, including date of induction, relevant skills and licenses, and be able to produce this list at the request of the *Supervisor*.
- x) The *Contractor's Site Supervisor* must complete manning sheets describing the day's activities, labor numbers and classifications and issue these to the *Supervisor* prior to 9.00 am on a daily basis.
- y) The *Project Manager's Site Safety Representative* is notified of any new starter with evidence of induction and site specific induction prior to commencement of work.

#### 5.3.4 *Contractor's Safety Officer*

The *Contractor* must appoint a full-time Health and Safety Officer for the duration of the contract who is registered with the SACPCMP (The South African Council for Project Construction Management Professions). If more than 100 employees are deployed on the project site(s) (directly or through sub-*Contractors*), at least two full-time Health and Safety Officers must be appointed, with an additional Health and Safety Officer appointed for every 100 additional employees thereafter.

The Health and Safety Officer must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-*Contractors*) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried out over more than one shift per day, the *Contractor* must make provision for an additional Health and Safety Officer.

Each *Contractor* Health and Safety Officer shall be responsible for:

- a) Reviewing all applicable legal and project health and safety requirements and providing guidance to *Contractor* and Subcontractor personnel (particularly the *Contractor's Project Manager*) to help ensure compliance at all times;
- b) Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the *Contractor*;
- c) Participating in the Baseline Risk Assessment for the *Contractor's* scope of work (prior to site establishment) and ensuring that identified control measures are implemented;
- d) Participating in all Task-Based Risk Assessments conducted for the work to be carried out by the *Contractor* and ensuring that identified control measures are implemented;
- e) Conducting *Contractor* health and safety induction training for all *Contractor* and Subcontractor personnel;

- f) Compiling and maintaining all health and safety related documents and records required of the *Contractor*;
- g) Communicating relevant health and safety information to *Contractor* and Subcontractor personnel (e.g. incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.);
- h) Carrying out Safety Observations and Coaching (one per day);
- i) Evaluating (on a daily basis) the content of the Daily Safe Task Instructions (DSTI's) conducted by the *Contractor's* appointed *Supervisors*, and attending at least one DSTI each day;
- j) Attending monthly *Contractor* and Site Health and Safety Meetings;
- k) Assisting with the implementation of the *Contractor's* Health and Safety Management Plan and associated Safe Work Procedures;
- l) Carrying out Planned Task Observations on an ad hoc basis;
- m) Assisting with the implementation, testing and maintenance of an effective Emergency Response Plan for all *Contractor* and sub-*Contractor* activities;
- n) Responding to workplace incidents (as appropriate);
- o) Participating in incident investigations;
- p) Maintaining accurate health and safety statistics (for the *Contractor* and all Subcontractors), and compiling health and safety performance reports as required;
- q) Auditing the health and safety management system and workplace activities of the *Contractor* and each Subcontractor on a monthly basis to assess compliance with the project health and safety requirements; and
- r) Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).

The *Contractor* must ensure that they have made adequate provision of safety officers as per the *Works* Information. The *Contractor* must ensure that the Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Health and Safety Officer must be provided with the following:

- a) A computer with access to all necessary systems, including access to e-mail and the internet;
- b) A mobile telephone on contract or with adequate pre-paid airtime; and
- c) A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).
- d) A Health and Safety Officer must be computer literate, fluent in English, and must have the following minimum qualifications, training, and experience:
- e) At least 5 years' experience as a Health and Safety Officer on construction, and mechanical projects;

- f) SAMTRAC or NEBOSH or Modern SHEQ Risk Management training course as a minimum qualification;
- g) Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;
- h) Experience and appropriate training with regard to construction related hazard identification and risk management processes;
- i) Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
- j) Health and safety auditing experience and training;
- k) A valid First Aid certificate of competency;
- l) Fire prevention and protection training; and
- m) A valid Driving License (light motor vehicle).
- n) Registered as a Health and Safety Officer with SACPCMP.
- o) Before placing a SHE Officer on the project site(s), the *Contractor* must forward a copy of the person's CV to the nominated project management representative or to TPT Health and Safety Manager and TPT Project Environmental Resource for review and acceptance. A proposed candidate may be rejected should he not meet the experience and/or qualification requirements, or due to poor work performance on previous projects.

#### 5.3.5 *Contractor's* Safety Manual

The *Contractor* must provide a hard copy of its safety manual, policies and procedures to the *Project Manager* for acceptance prior to the commencement of any site work. The *Contractor* must ensure that his personnel, at all times, strictly observe and comply with the procedures set out therein. The *Project Manager* or the *Project Manager's* nominated Representative may from time-to-time request safety procedures applicable to the area of operations. The *Contractor* must forward to the *Project Manager* any updates or revisions to its safety manuals, policies or procedures as soon as practicable following revision or update.

The *Project Manager* may require the *Contractor* from time to time to supplement its safety manual, policies and procedures with guidelines and/or operating standards provided to the *Contractor* by the *Project Manager*. The *Contractor* must comply with such requests where the request is consistent with the requirements of the Contract. The *Contractor* must give prompt written notice to the *Project Manager* of any objection to the requested supplement, including the reasons for objection. The *Project Manager's* rights under this Clause are not intended, and must not be construed, to relieve the *Contractor* from any obligations to ensure compliance with all provisions of this Contract.

#### 5.3.6 Performance Measurement and Reporting

##### a) Health and Safety Statistics

The *Contractor* and each of its Subcontractors must complete and submit Health and Safety statistics to the *Project Manager* or the *Project Manager's* nominated representative, or as amended by the *Project Manager*, before mid-day on the Friday of each week. The *Contractor* must submit monthly Health & Safety Statistics before mid-day on the last day of each month to the *Project Manager's* nominated representative.

##### b) Safety Management Records

The *Contractor* must submit to the *Project Manager* for acceptance a schedule of the specific Health and Safety records it intends to maintain for the Contract. As a minimum, such records are as specified by applicable legislation. Copies are provided to the *Project Manager* or the *Project Manager's* nominated Representative if requested.

##### c) Field Technical/Safety Audit by the *Project Manager*

The *Project Manager* or the *Project Manager's* nominated Representative has the right to conduct audits/inspections of the Consultant, Professional Service Provider (PSP) and *Contractor* Safety Management Plan implementation, operations, equipment, emergency procedures, etc., at any time, and the *Contractor* must fully cooperate with the *Project Manager* or the *Project Manager's* nominated Representative during such audits/inspections. The *Project Manager's* rights under this clause does not, must not and will not relieve the Consultant, Professional Service Provider (PSP) and *Contractor* of its own obligations to conduct audits and reviews of its own Health and Safety performance.

Where such audits/inspections reveal deficiencies in the *Contractor* procedures, drills, training or equipment, or non-conformities with the *Contractor* accepted project Safety Management Plan, of a minor nature (Risk Rating of 6 or less), the *Contractor* must investigate the cause of the nonconformity and initiate corrective and preventive action to rectify such deficiencies and non-conformities and prevent recurrence as soon as practicable.

Where such audits/inspections reveal deficiencies of a major nature (Risk rating of 7 or greater), the *Contractor* must stop work on the operation/activity concerned, immediately investigate the cause of the non-conformity, and initiate corrective actions to rectify such deficiencies and non-conformities and to prevent recurrence. These corrective action plan(s) is submitted to the *Project Manager* for review and comment within 24 hours of the audit finding.

Where such deficiencies include an unsafe practice or a breach of the statutory or the Contract's requirements, the *Project Manager* or the *Project Manager's* nominated Representative may in accordance with the General Conditions of Contract suspend the work associated with the unsafe practice or breach until the deficiency is rectified. The *Project Manager* or the *Project Manager's* nominated Representative will establish a schedule of regular field safety audits which will be based on an audit tool aligned to the *Contractor* Safety Management Plan and site operations and activities. The *Contractor* audit conformance will be assessed as a percentage and where conformance is better than 90% it will be considered satisfactory and the *Contractor* must develop and implement an action plan within 4 weeks, to be reviewed at the next regular audit. Where the *Contractor* level of conformance is between 80 – 90%, a corrective action plan will be required to be developed and implemented within 2 weeks, and a follow up audit will be carried out. Where the *Contractor* conformance is less than 80% the *Contractor* must stop work until an investigation of the cause/s has been completed and corrective actions have been developed and implemented by the *Contractor*.

The *Contractor* must provide to the *Project Manager* or the *Project Manager's* nominated Representative, at a time to be agreed, but not to exceed monthly intervals, a regular status report on all outstanding corrective actions until they are successfully closed out.

d) Unsafe Act/Condition Auditing

The *Contractor* must implement a system to recognize, correct, and report unsafe acts/conditions (Unsafe Act/Condition Auditing) associated with all Site activities.

All such observations must be recorded and delivered to the TPT Health and Safety Manager.

e) Involvement, Communication and Motivation

The *Contractor* and Subcontractor's workforce must, through their supervision, safety notice boards, toolbox meetings and daily pre-start meetings be kept aware of safety related matters.

f) Safety Meetings

The *Contractor* must implement and comply with OH&S Act, Section 19

The *Contractor* must conduct weekly safety meetings with his employees to foster safety awareness. Copies of minutes and action items arising from such Toolbox meetings is submitted or otherwise made available for review by the *Project Manager* or the *Project Manager's* nominated Representative.

Such meetings should at least address:

- Accident / safety incidents
- Hazardous conditions
- Hazardous materials / substances
- Work procedures
- Protective clothing / equipment
- Housekeeping
- General safety topics
- Job or work look-ahead issues
- Safety statistics
- Significant Safety Occurrences (SSO)

The *Contractor* must conduct at least one formal safety meeting per month and must maintain appropriate records of attendance and meeting content. Such records are made available to the *Project Manager's* Representative. In addition to Daily Safe Task Instructions, the *Contractor* must conduct at least weekly "toolbox" meetings to discuss safety issues and procedures.

g) Pre-Start Safety Briefings

The *Contractor* must hold documented Daily Safe Task Instructions with each work team before the start of each shift. Attendance records and brief topic notes is kept for auditing and record purposes. Safety Review Meetings

- The *Contractor* Site Manager and a Site Safety Representative must take part in weekly safety review meetings between the *Contractor* and the *Project Manager* or the *Project Manager's* nominated Representative.
- The *Contractor* must attend all project safety meetings as outlined in the Project Safety Management Plan.

h) Site Safety Review Committee

The *Contractor* complies with the requirements of the SSRC with respect to his own activities and others on the Site and Working Areas.

i) HAZOP Review

The *Contractor* participates in HAZOP reviews upon the instruction and direction of the *Project Manager*.

The reviews may include, but not be limited to, studies to ensure that the Plant is built and operated as designed and that personal safety, employee health and environmental protection systems conform to the *Employer's* and legislative requirements.

j) Job Safety Analysis

The *Contractor* completes a JSA prior to carrying out any operation on the Site and/or Working Area to the approval of the *Project Manager*.

k) Lines of Communication

The following personnel act on behalf of the *Project Manager* and may communicate directly with the *Contractor* and his key persons with respect to the SMP:

- Construction Manager (CM)
- Project Site Safety Manager (PSSM)

5.3.7 Roles and responsibilities

The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to the SMP and health and safety issues are as stated in the paragraphs following:

5.3.7.1 Construction Manager

- a) The CM is responsible (in the context of the SMP only) for health and safety on the Site and Working Areas and reports to the *Project Manager*.
- b) The CM specific tasks (in the context of the SMP) are:
- c) Implement the safety management system
- d) Monitor compliance to the established safety management system
- e) Ensure risk is at an acceptable level
- f) Ensure Consultant Construction Management Team are competent
- g) Provide for:
- h) Planning, organisation, leadership and control
- i) Particular technical competencies for critical work
- j) Supervision and control on each shift
- k) Regular monitoring and assessment
- l) Workplace inspections

5.3.7.2 Project Site Safety Manager:

- m) The PSSM is responsible for ensuring that the *Contractor* complies with the SMP. The PSSM acts on behalf of the *Project Manager*.
- n) The PSSM specific tasks (in the context of the SMP) are:
- o) Define, in accordance with the HSSP, the:
- p) Safety program (instructions, training, meetings, inspections, incentive)
- q) Health and medical program
- r) Checks that *Contractors* have issued their Health and Safety plans, PPSPS and procedures before the beginning of work

- s) Organizes safety awareness campaigns
- t) Promotes communication on all health and safety matters (awards, incentives, meeting/inspections/audits reports)
- u) Checks conformance of equipment to technical requirements and regulations.
- v) Issues and address the site EHS activities reports
- w) Promotes everybody's best efforts to keep accident frequency and severity ratios at their lowest level
- x) Promotes a proper and continuous housekeeping of Plant and temporary facilities in order to create the most suitable conditions for workers to work and to be encouraged to follow HSE requirements
- y) Conducts *Worksite* EHS walks with all *Contractors*, and directs appropriate corrective actions
- z) Monitors that all factors likely to improve health and safety are taken into consideration, particularly those which lead to:
  - aa) Promoting personnel protection as an absolute requisite
  - bb) Investigating, identifying and neutralizing potential hazards
  - cc) Close coordination with all parties involved in construction in order to avoid overcrowded areas and dangerous operations
  - dd) Thorough preparation of work critical phases
  - ee) Close contacts to local EHS authorities
  - ff) Continuous follow-up in order to correct immediately unsafe acts and situations
  - gg) In case of accident, he takes actions necessary to:
  - hh) Initiate quick interventions of the emergency means.
  - ii) Check that first aid and evacuation of injured persons are properly carried out.
  - jj) Obtain a clear accident report from the sub-*Contractor* concerned.
  - kk) Report immediately to the Construction Manager.
  - ll) Investigate to identify the root causes of all incidents and near misses.

#### 5.3.8 Commissioning Safety Study

The *Project Manager*, through his Construction Management Team, will facilitate and coordinate a formal Commissioning Safety Study and ensure that required procedures are prepared prior to the commencement of the commissioning phase.

The Commissioning Safety Study will provide a final checkpoint for the completed work and is part of the process for ensuring that all necessary actions have been completed.

The elements to be considered include:

- a) Electrical integrity systems are in place (e.g. equipment tests and inspections of critical equipment, quality control procedures, etc.) which will confirm that construction, equipment and materials are in accordance with design specifications

- b) Formal hazard analyses for pre-commissioning and commissioning activities have been completed, appropriately documented, and communicated, and are available to all personnel.
- c) Punch-list work has been sufficiently completed so that installations are safe to apply hazardous energy.
- d) Documentation relevant to any modifications has been created/updated.
- e) Safe operating, maintenance and emergency procedures are in place.
- f) Operating and maintenance manuals are available and training of commissioning employees has been completed.
- g) As Built drawings are available.
- h) A Commissioning Permit (to apply hazardous energy) is developed and implemented.

The *Project Manager* will ensure that after commissioning there is a formal documented hand over to operations and maintenance personnel and others who will be impacted by hazards that have been identified during project activities. This will involve communication of any changes to the process hazards, procedures, and operating philosophy. Safe systems of work will be established and updated throughout the Project. Safe systems of work will be subject to on-going review to ensure their effectiveness. Site-wide Permits to Work will be used as the basis of safe systems of work for specified hazardous activities.

#### 5.3.9 Housekeeping

Accidents can occur as a result of poor housekeeping. Hazards at construction site are the same for both day and night shift while the risks of injury are much higher during night *Works* because of the inherent poor illumination. It is essential that the workplace is kept clean and tidy to ensure safety and prevent accidents.

#### 5.3.10 Document Control

All safety documents shall comply with the Project Document Control Procedures.

#### 5.3.11 Medicals

Pre-employment medicals, including chest X-ray examinations, specific for the Contract will be required for all employees working on the Site regardless of duration spent on Site. Exit medicals, including chest X-ray examinations will be required at the end of the Contract. These medical examinations must be carried out by a registered Occupational Health Practitioner.

The *Contractor* must ensure that budget provision for SHE requirements are in place.

## 5.4 Environmental Constraints and Management

- 5.4.1 All work is to be conducted in accordance with the principles of the National Environmental Management Act, 1998 (Act no 107 of 1998) but not limited to other applicable regulations as well acceptable environmental good practices. In addition, the *Contractor* is expected to comply with all applicable eThekweni Municipal bylaws.
- 5.4.2 The following documents, included in Annexure of the Works Information, provide the minimum acceptable standards that shall be adhered to:
- Standard Operating Procedure for Construction Environmental Management (SOP: CEM)
  - Contractor Environmental and Sustainable Specifications Guideline (CESSG)
  - Transnet Integrated Management Policy Commitment Statement (TIMS)
  - Project Environmental Specifications (PES) as contained in:
    - Project Environmental Specification (PES) includes eThekweni bylaws such as:
    - Schedule Trades and Occupations Bylaws*
    - Interim Code* relating to fire prevention and flammable liquids and substances

The above requirements shall be applicable to the main *Contractor* and its service providers. The *Contractor* must comply with all the requirements of the SOP: CEM, CESSG and the PES as mentioned above. The *Contractor* must pay special attention to all PES conditions. These conditions must strictly be adhered to and shall be monitored.

The *Contractor* must sign the Declaration of Understanding as a commitment (Commitment to conform to the SOP: CEM) abide with TPT's Environmental Control Framework and Project Environmental Specifications. Sufficient environmental budget must be allocated to meet all the project environmental requirements for the duration of the contract.

The *Contractor* shall perform the *works* and all construction activities within the Site and Working Areas having due regard to the environment and to environmental management practices as more particularly described within the SOP: CEM, PES and CESSG.

The SOP: CEM defines how environmental management will be practiced on construction projects under Transnet's management and to ensure that that the environment is considered that negative impacts are avoided, or minimised and positive impacts are enhanced. The SOP: CEM further describes the main roles and responsibilities of the project team with respect to Environmental Management.

The CESSG describes the minimal requirements for environmental management to which the contractors must comply.

- 5.4.3 The *Contractor* must appoint a Safety, Health & Environmental Officer (SHEO) to monitor and manage compliance to Environmental Specification and all applicable environmental

legislation. The SHEO must as a minimum have at least 5 years work experience in environmental management within the civil/structural and/or construction projects.

- 5.4.4 The *Contractor* will be required to submit a SHE file to TPT post award of tender. Requirements of the *Employer* will be made known on award of the contract. Site access certificate shall not be granted until the environmental file has been approved by the Employer.
- 5.4.5 The overarching obligations of the *Contractor* under the CESSG before construction activities commence on the Site and/or Working Areas is to provide environmental method statements (as contained under section 5.10 of the CESSG) for all construction operations at the Site and/or Working Area by the *Contractor* and where requested by the CM and to comply with the following:
- 5.4.6 The *Contractor* shall identify the kinds of environmental impacts that will occur as a result of their activities and accordingly prepare separate method statements describing how each of these impacts will be prevented or managed so that the standards set out in the CESSG document are achieved. The method statements will be prepared in accordance with the requirements set out in the SOP: CEM. These method statements shall form part of the environmental file.
- 5.4.7 The *Contractor* shall ensure that his management, foremen and the general workforce, as well as all suppliers and visitors to Site have attended the Environmental Induction Programme prior to commencing any *work* on Site. If new personnel commence work on the Site during construction, the *Contractor* shall ensure that these personnel undergo the Environmental Induction Programme and are made aware of the environmental specifications on Site.
- 5.4.8 Where required, one of the first actions to be undertaken by the *Contractor* shall be to erect and maintain a temporary fence along the boundaries of the Site and Working Areas as applicable, and around any no-go areas identified on the layout plans, to the satisfaction of the *Project Manager*.
- 5.4.9 During the construction period, the *Contractor* complies with the following:
  - a) A copy of the SOP: CEM and CESSG shall be available on Site, and the *Contractor* shall ensure that all the personnel on Site (including Subcontractors and their staff) as well as suppliers are familiar with and understand the specifications.
  - b) Method statements need to be compiled by the *Contractor* throughout the Construction and Commissioning phase of the project. These Method Statements must be approved by the *Supervisor* and TPT *SHEQ Manager* or *Project Environmental Resource*. Approval must at least be two weeks prior to the proposed commencement of the activity. Emergency construction activity method statements may also be required. The activities requiring method statements cannot commence if they have

not been approved by the TPT Environmental Manager or Project Environmental Resource.

- c) Where applicable, the *Contractor* shall provide job-specific training on an *ad hoc* basis when workers are engaged in activities, which require method statements.
- d) The *Contractor* shall be responsible for rehabilitating and or re-vegetating all areas to the satisfaction of the TPT Environmental Manager or Project Environmental Resource as detailed in the CESSG. Sufficient environmental budget must be allocated to achieve this.

5.4.10 The *Contractor* must ensure that its Subcontractors comply with the Environmental Specification. The *Contractor* shall retain proof of having conducted adequate training / awareness with the sub-contractor, in terms of these requirements.

## 5.5 Quality Assurance Requirements

5.5.1 The *Contractor* shall have, maintain, and demonstrate its use to the *Project Manager* (and/or the *Supervisor* to satisfy the requirements of *The Works* Information as appropriate) the documented Quality Management System to be used in the performance of *The Works*.

5.5.2 The *Contractor's* Quality Management System shall conform to International Standard ISO 9001 (or an equivalent standard acceptable to the *Project Manager*) and as a minimum to the requirements of specification **EAM-Q-009**, General Quality requirements for Suppliers and contractors as contained in the Annexure to this *Works* Information.

5.5.3 The *Contractor* submits his Quality Management System documents to the *Project Manager* as part of his programme under ECC Clause 31.2 to include details of:

- a) Typical Project Quality Plan (PQP) for the contract;
- b) Valid ISO 9001 Certificate
- c) Index/List of Procedures/Method statement to be used
- d) Qualification and experience of Quality personnel
- e) Project specific Quality Control Plan
- f) Typical Quality Data Book Index

5.5.4 The *Contractor's* PQP includes or references to the quality plans of his Subcontractors and Suppliers.

5.5.5 The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.

5.5.6 The *Project Manager* indicates those documents required to be submitted for either information, review or acceptance and the *Contractor* indicates such requirements within his register of documents. The register shall indicate the dates of issue of the documents with the *Project Manager* responding to documents submitted by the *Contractor* for review

or acceptance within the *period for reply* prior to such documents being used by the *Contractor*.

- 5.5.7 The Project Quality Plan means the *Contractor's* statement, which outlines strategy, methodology, resources allocation, QA and Quality Control co-ordination activities to ensure that the *works* meet the standards stated in the Works Information. Site Access will not be granted unless the PQP has been accepted by *The Employer*.
- 5.5.8 The Quality Control plans shall identify all inspection, test and verification requirements to meet Contractual obligations, specifications, drawings and related details including destructive, non-destructive testing, witness and hold points. The *Contractor shall not* commence fabrication or manufacture prior to review and acceptance of the applicable QCP's by *The Employer*.
- 5.5.9 The Index of Procedures means the *Contractor's* system for management of:
- Documentation Control
  - Design Control
  - Procurement
- 5.5.10 The Inspection and testing mean:
- a) Quality Control Plans
  - b) Inspection Points
  - c) Schedule of Inspections
  - d) Field Inspection Checklists
  - e) Inspection Notification
  - f) Inspection release
  - g) Inspection and testing
  - h) Special processes
  - i) Welding Procedures
  - j) Material traceability and certification

## 5.6 Programming constraints

- 5.6.1 The *Contractor's* construction WBS as a minimum shall include but not be limited to the following WBS Elements:
- a) Procurement and delivery of all long lead items necessary to Provide the *works* in line with the stipulations of the *Employer's* Works Information. Long lead items include but are not limited to; Plant, equipment, materials and any other resources, as required to provide both temporary and permanent *works*.
  - b) *Contractor's* design as well as associated procedure for *Contractor's* design submission and acceptance of any portion of the *works* and/or approval of Plant as stipulated under Sections 1 Clause 2 of the Works Information in accordance with the stipulations for submission, acceptance and approval as stipulated under the relevant

section(s) of the *Employer's* Works Information; including any other additional design requirements, interfacing and or alterations in existing design which may stem from the aforementioned.

- c) Manufacturing and or Fabrication both on and off-site which may include but is not limited to; Plant, equipment, materials and any other resources, as required to provide both temporary and permanent *works*.
- d) Preparation and Approvals of Health & Safety, Environmental and Quality Documentation.
- e) Approval of any applicable permits, permissions and licenses, including inductions.

5.6.2 The *Contractor's* construction programme shall correspond with the *Contractor's* Method Statements, Quality Control Plans and Risk Assessments, as drafted in line with the *Employer's* stipulations.

5.6.3 The *Contractor* uses the latest version of MSP for his programme submissions, or similar approved software with the prior written consent of the *Project Manager*. In the event that the *Contractor* will be using earlier or later versions of the software, the onus is on the *Contractor* to ensure that a conversion is done in order for the file to be compatible with MSP.

5.6.4 The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements of the [SOP: CEM, PES and CESSG] as described under the relevant sections of the Works Information, together with the associated environmental method statements.

5.6.5 The *Employer* (including the agents of the *Employer*) operates on *Site* during dates or timings when the *Contractor* has completed certain elements of the *works* and/or during the contract period as stipulated in this Works Information.

5.6.6 Others operate on *working area* during dates or timings when the *Contractor* has completed certain elements of the *works* as stipulated in this Works Information

5.6.7 The *Contractor's* first programme submitted for acceptance shall be agreed during the pre-contract negotiation period, and no later than the period stipulated under Contract Data Part One (2 weeks after the Contract Date).

5.6.8 The *Contractor* complies with the *Employer's* high-level programme when he submits his first programme for acceptance.

5.6.9 The *Contractor* presents his first programme for acceptance and all subsequently revised programmes (see ECC Clauses 31.2 and 32.1) in hard copy and soft copy format.

5.6.10 The *Contractor* shows on his programme submitted for acceptance and all subsequently revised programmes, the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.

5.6.11 The *Contractor's* programme shows duration of operations in working days as per the stipulated definition of the workdays and hours in the *Employer's* Works Information.



- 5.6.12 Each programme submitted by the *Contractor* to the *Project Manager*, is fully Cost and Resource Loaded (People, Equipment, Plant, Materials & Other Resources) with the exception of the *Contractor's* tender programme submission.
- 5.6.13 The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements as listed in the NEC 3, ECC, Clause 31.2.
- 5.6.14 The *Contractor* attends, participates in and makes a meaningful contribution to, planning initiation & set-up meetings held during the pre-contract negotiation period and no later than the period stipulated under *Contract Data Part One* (2 weeks after the Contract Date); to agree and set-up including but not limited to - the first schedule for acceptance; monitoring, control and reporting requirements; proposed templates and planning/scheduling procedures to be complied with for the duration of the project.
- 5.6.15 The *Contractor* shows on each revised programme he submits to the *Project Manager* a resource histogram showing planned progress versus actual, deviations from the Accepted Programme and any remedial actions proposed by the *Contractor*, including a spread sheet identifying instances of resource over-allocation and/or conflicts, accompanied by proposed resolutions.
- 5.6.16 The *Contractor's* programme shows the following levels:
  - a) Level 1 Master Schedule – defines the major operations and interfaces between engineering design, procurement, fabrication and assembly of Plant and Materials, transportation, construction, testing and pre-commissioning, commissioning and Completion.
  - b) Level 2 Project Schedule – summary schedules 'rolled up' from Level 3 Project Schedule described below.
  - c) Level 3 Project Schedule – detailed schedules generated to demonstrate all operations identified on the programme from the starting date to Completion. Individual operations will be assigned a code. The *Employer* notifies any subsequent layouts and corresponding filters on revised programmes.
  - d) Level 4 Project Schedule –detailed discipline/speciality level schedule decomposed to the appropriate levels of detail in order to accurately substantiate activity scope and activity duration estimates; developed and maintained by the *Contractor* relating to all operations identified on the programme representing the daily activities by each discipline, with activities and operations adequately decomposed in order to accurately represent the effort required to execute said activity/operation and support accurate duration estimates.
  - e) A narrative status report, which includes but is not limited to status and performance of operations on the *Site* and Working Areas; status and performance of operations outside the Working Areas; manpower histograms; critical action items (top 10) and deviations from the Accepted Programme and action plan to rectify.

- f) Basis of Programme/Schedule document detailing but not limited to the following minimum requirements:
- Basis of latest accepted programme, including an overview of assumptions, constraints, specific and quantified resource allocations, productivity assumptions and basis of calculation, identification and justification of general scheduling provisions such as calendars and working times, lags, date constraints, activity durations longer than one reporting period, etc.
  - Description of network logic and sequencing.
  - Description of general construction approach.
  - Description of approach to allocation, use and management of all resources dedicated to the project.
  - Description of and trend analysis of critical risks as identified through schedule risk analysis and included in schedule contingency and or Time Risk Allowance provisions.
  - Discussion regarding the basis, method of calculation and validity of the critical path and near critical paths, (interrogate longest path and total float as contained in the programme).
  - Reporting on change management, i.e. identify and record any deviations/changes that have taken place within the previous reporting cycle, and their resultant impact on the remaining *works* and as identified and highlighted in the current revision of the programme for acceptance.
  - Identification critical activities, as well as top 10 near critical activities and undertake trends analysis on such activities with the aim to identify any deviations from planned performance.
  - Identification of any recovery and or mitigation action required in order to neutralise any deviations.

## 5.7 Reporting and Monitoring

- 5.7.1 The *Contractor* attends meetings as included but not limited to Section 2 Clause 5 of the *Employer's Works Information*.
- 5.7.2 The *Contractor* attends weekly planning meetings. Meeting agenda to include progress reporting as detailed under Section 2 Clause 5.10 of the *Employer's Works Information*, recovery/optimisation, contractual matters in line with NEC ECC core clauses 31, 32 and main option clause, Option B.
- 5.7.3 The *Contractor* submits programme narrative report to the *Project Manager* at fortnightly intervals in addition to the intervals for submission of revised programmes stated under *Contract Data Part One*. The *Contractor* also submits monthly programme narrative report to *Project Manager*.

- 5.7.4 The *Contractor* completes an assessment of all activities in progress and to completion to determine physical percentage complete, forecasted completion dates, deviations from the Accepted Programme and proposes remedial action to rectify deviations.
- 5.7.5 The *Contractor* shows on each revised programme he submits to the *Project Manager* a resource histogram showing planned progress versus actual, deviations from the accepted programme and any remedial actions proposed by the *Contractor*.
- 5.7.6 The *Contractor* submits the programme narrative report detailing the status and performance of operations on the Site and Working Areas, status and performance of operations outside the Working Areas, man-power histograms, Plant and equipment histograms, and critical action items (top 10). Report shall indicate "progress this period" and "progress to date".
- 5.7.7 The *Contractor's fortnightly* project progress report (narrative report) includes but is not limited to:
- Level 4 Project Schedule – showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted Programme.
  - Progress Spreadsheet detailing actual progress achieved (target/planned quantity versus actual quantity) on current (critical) activities for the previous week, planned progress for the current week, deviations and proposed recovery for each activity in question. A 1-week Look Ahead Spreadsheet in line with the aforementioned stipulations to be included. Priority to be given to identification of critical activities, progress and any deviations from planned performance in this regard.
  - 3-week Look Ahead Schedule showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted Programme.
  - Dependencies/Deliverables matrix detailing interim approvals and/or any other inputs/requirements from *Employer/Supervisor/Project Manager/Others* or any other project *Stakeholder* in line with the activities identified in the 3-week Look Ahead Schedule.
  - Interfacing Matrix, detailing timeous identification of any requirements for providing the *works* and/or *works* to be executed by *Others* and any other *Stakeholders* party to this contract in line with the stipulations of the *Works Information*.
  - Manpower Histogram – reflecting actual, forecasted and planned activities.
  - Plant and Equipment Histogram – reflecting actual, forecast and planned activities.
  - Identification critical activities, progress and any deviations from planned performance.
  - Adherence and actual performance achieved with regards to Environmental, Health & Safety and Quality Management.

- j) The *Contractor* shall submit to the *Project Manager*, a bi-weekly report on progress of any off-site manufacturing activities undertaken during the previous half-month.
  - k) Based on the Accepted Programme/ latest programme submitted for acceptance the *Contractor* submits a cash flow forecast report that details the anticipated monthly cash flow, represented by the expected assessment of the amounts due, to the *Project Manager*. The cash flow forecast is to be extrapolated from the latest Accepted Programme through the mechanism of the cost loaded schedule or other similar methodologies with the prior approval of the *Project Manager*.
- 5.7.8 The *Contractor's* **monthly** project progress report includes but is not limited to:
- a) Monthly, the Contractor completes an assessment of all activities in progress and to completion, and accordingly revises and submits the updated programme for acceptance and cash flow forecast report detailing any variances and proposes remedial actions to rectify deviations.
  - b) The *Contractor's* monthly programme narrative report is submitted a week before the last Friday of each month, or as required by the *Project Manager*. The report shall indicate "progress this period" and "progress to date" and shall include, but is not limited to, the following:
    - Summary of progress achieved during the reporting period.
    - Latest Accepted Programme.
    - Deviations from the current Accepted Programme and action plans to rectify.
    - Project milestones table – planned versus actual and forecast.
    - Status and performance of operations on the site and Working Areas.
    - Status and performance of operations outside Working Areas.
    - Cash flow forecast report.
    - Digital photographic record of the progress of the *works*.
    - Manpower histograms, including a control spread sheet detailing specific over allocation and/or conflicts in allocation of resources.
    - *Contractor's* Plant and equipment histograms, including a control spread sheet detailing specific over-allocation and/or conflicts in allocation of resources.
    - S-curves of overall progress.
    - Critical action items list (top 10).

## 5.8 Contractor's management, supervision, and key people

- 5.8.1 The *Contractor* shall make an adequate, experienced, and stable project team available for the duration of the contract. Every effort must be exercised by the *Contractor* to minimise the replacement of project team members in order to ensure optimum contract management continuity and efficiency.
- 5.8.2 No sharing of key personnel roles will be permitted in this project.

5.8.3 The *Contractor* employs full time, fully qualified and experienced key persons who have been delegated sufficient authority to manage the contract efficiently on-site during completion of the *works* including and not limited to:

**a) Project Manager**

- The Project Manager must have a national diploma qualification in Built Environment, national diploma in Project Management and at least 5 years post qualification experience managing construction projects.
- The Project Manager should further provide evidence in working with the NEC suit of contracts and must have experience working in similar projects.

**b) Site Supervisor (building and civil infrastructure)**

- The Site Supervisor must have a minimum of NTC 3/Grade 12 with at least 5 years of experience in building services and civil /building construction.

**c) Safety Health and Environmental Officer (SHEO)**

- SHE Officer must have a minimum and completed SAMTRAC/NEBOSH or MSRM (Modern SHEQ Risk Management Qualification course) in safety management, registered with SACPCMP as CHSO (Construction Health and Safety Officer) and a minimum of 5 years' experience as a SHE Officer within the civil/ structural and/ or construction projects. Proof of environmental training must be attached to the C.V. and experience in environmental management to be included in the C.V.

**d) Construction Manager/Site Agent**

- The Construction Manager must have a minimum qualification of a Diploma in Civil Engineering and at least 5 years of experience in building construction projects. The Construction Manager must have experience working with the NEC suit of contracts and must have experience working in similar projects. (Fencing, demolitions, and civil works).

**e) Civil / Structural Engineer**

- The Civil / Structural and design Engineers must be professionally registered (Pr. Tech. Eng. or Pr. Eng.), for final sign off and provision of relevant compliance certifications (Attach ECSA registration certificate).
- The Civil / Structural and design Engineers must have a minimum of 2 years' experience in design post registration (Attach CV and qualifications).

**f) Planner**

- The planner should at least have an Engineering Diploma and a minimum of 5 years' experience working in building and civil projects as planner.

- 5.8.4 The *Contractor* employs personnel listed above but not limited to those mentioned in order to perform the functions of key persons under NEC3 ECC Clause 24.1. These appointments shall have the necessary experience and be suitably qualified.
- 5.8.5 The *Contractor* provides an Organogram of all his key people (both as required by the *Employer* and as independently stated by the *Contractor* under Contract Data Part Two) and how such key people communicate with the *Project Manager* and the Supervisor and their delegates all as stated at paragraph 2.5 of C3.1 *Employer's Works Information*.

## 5.9 Contract change management

- 5.9.1 For ease of communication standard templates shall be used for contract change management. The *Contractor* forwards all correspondence with respect to contract change management, i.e. Early Warnings and notifications of Compensation Events, on the standard templates provided.

## 5.10 Records of Defined Cost, payments & assessments of compensation events kept by *Contractor*

- 5.10.1 The *Contractor* keeps the following records available for the *Project Manager* to inspect:
- Records of design employees location of work or professional engineers engaged by the *Contractor*
  - Records of people and Equipment within the working areas
  - Records of Equipment used and people employed outside the Working Areas
  - Records of quotations, invoices and pay slips.

## 6 List of Annexures

- 6.1.1 All the annexures listed hereunder shall be deemed to form part of *The Works Information*.

| Description / Discipline                                                                   |
|--------------------------------------------------------------------------------------------|
| Annexure - Project Health and Safety Specification                                         |
| Annexure - CAD Standards                                                                   |
| Annexure - Contractor Environmental and Sustainable Specifications (TRN-IMS-GRP-GDL-014.4) |
| Annexure - Standard Operating Procedure for Construction Environmental Management          |
| Annexure - DOC-STD-0001 Rev.03 <i>Contractor</i> Documentation Submittal Requirements      |
| Annexure - TPT Structural Steelwork EEAM-Q-006                                             |

TRANSNET PORT TERMINAL

CONTRACT NUMBER: ICLM HQ XXX/TPT

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF BBC PERIMETER FENCE FOR TRANSNET SOC LTD (REG.NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AT THE PORT OF DURBAN POINT TERMINAL (MPT), AGRI-PORT AND MAYDON WHARF TERMINAL



|                                               |
|-----------------------------------------------|
| Annexure - TPT Corrosion Protection EAM-Q-008 |
| Annexure - TPT Quality Management EAM-Q-009   |
| Annexure - TIMS Policy Commitment Statement   |
| Annexure - CAD PALISADE_FENCE_AMEND 9         |
| Annexure - CAD PALISADE SLIDING GATE DETAILS  |
| Annexure - CAD PALISADE SWING GATE DETAILS    |
| Annexure - General Spec High Security Fence   |
|                                               |