

PART C3: SCOPE OF WORK

Document reference	Title	No of page
	This cover page	1
C3.1	<i>Employer's Works Information</i>	5-54
C3.2	<i>Contractor's Works</i>	55
	Total number of pages	55

C3.1 EMPLOYER'S WORKS INFORMATION

Table of Contents

PART C3: SCOPE OF WORK	1
SECTION 1	5
1 DESCRIPTION OF THE <i>WORKS</i>	5
1.1 Executive overview	5
1.2 Employer's objectives	5
1.3 Location of <i>Works</i>	8
1.4 Access to the <i>Works</i>	9
1.5 Interpretation and terminology	10
2 ENGINEERING AND <i>CONTRACTORS'</i> DESIGN	10
2.1 Employer's design	10
2.2 Parts of the <i>Works</i> which the <i>Contractor</i> is to design	11
2.3 Document Submission	13
2.4 Pre-preparation for <i>Works</i> execution.....	14
2.5 General requirements for the <i>Works</i>	14
2.6 Procedure for submission and acceptance of <i>Contractor's</i> design	15
2.7 Review and Acceptance of <i>Contractor</i> Documentation	15
2.8 Other requirements of the <i>Contractor's</i> design.....	16
2.9 Use of <i>Contractor's</i> design.....	16
2.10 Design of Equipment	16
2.11 Equipment required to be included in the <i>Works</i>	16
2.12 As-built drawings, operating manuals and maintenance schedules.....	16
3 CONSTRUCTION.....	16
3.1 Temporary <i>Works</i> , Site services & construction constraints.....	16
3.2 Site services and facilities.....	17

3.3	Facilities provided by the <i>Contractor</i>	17
3.4	Survey control and setting out of the <i>Works</i>	19
3.5	Excavations and associated water control	19
3.6	Underground services, other existing services, cable and pipe trenches and covers	19
3.7	Control of noise, dust, water and waste	20
3.8	Giving notice of work to be covered up	20
3.9	Restrictions to access on Site, roads, walkways and barricades	20
3.10	People restrictions on Site; hours of work, conduct and records	21
3.11	Title to materials from demolition and excavation.....	21
3.12	Cooperating with and obtaining acceptance of others	21
3.13	Publicity and progress photographs	21
3.14	Completion, Testing, Commissioning and Correction of Defects.....	21
4	PLANT AND MATERIALS STANDARDS AND WORKMANSHIP	23
4.1	Investigation, Survey and Site Clearance.....	21
4.2	National Standards	21
4.3	Civil Engineering and Structural <i>Works</i>	21
4.4	Electrical and Mechanical Engineering <i>Works</i>	22
4.5	Materials, Fabrication and Finishing.....	23
4.6	Ease of Operation and Maintenance	23
4.7	Safety Equipment and Name Plates	23
4.8	Scaffolding	24
4.9	Erection Planning	24
4.10	Rigging	24
4.11	Workmanship	25
4.12	Painting and Corrosion Protection	25
4.13	Lubrication	25
4.14	Health, Safety and Environmental Requirements	26
4.15	Quality Control Plan	26
4.16	Storage of Existing Plant and Materials	27
4.17	Welders Certification	27
4.18	Weld maps, Weld Inspection and Weld Failures	28
5	LIST OF DRAWINGS	31
5.1	Drawings issued by the Employer	31

SECTION 2.....	31
6 MANAGEMENT AND START UP.....	31
6.1 Management meetings	31
6.2 Documentation Control	32
6.3 Safety risk management	32
6.4 Environmental constraints and management	32
6.5 Quality assurance requirements	33
6.6 Programming constraints	45
6.7 <i>Contractor's</i> management, supervision and key people	48
6.8 Training <i>Workshops</i> and technology transfer	50
6.9 Insurance provided by the Employer.....	50
6.10 Contract change management.....	51
6.11 Provision of bonds and guarantees.....	51
6.12 Records of Defined Cost, payments & assessments of compensation events kept by <i>Contractor</i>	51
7 PROCUREMENT	51
7.1 Code of Conduct.....	51
7.2 The <i>Contractor's</i> Invoices	52
7.3 People	53
7.4 Subcontracting.....	53
7.5 Plant and Materials	53
7.6 Tests and inspections before delivery	54
SECTION 3.....	555
C3.2 Contractor's Works Information	555

PART C3: SCOPE OF WORK

SECTION 1

1 DESCRIPTION OF THE WORKS

1.1 Executive overview

The dry dock at the Port of Durban was commissioned in 1923.

Two large steel gates, called Caissons, divide the dry dock into two operational compartments. The Caissons were originally built in 1923 and are classified as a rigid box frame assemblies, fastened by riveting and riveted “caulked” plates at their hull structures. The centre sections (Decks “C” to “D”) are a sealed compartments comparable to a ship’s hull and as such are classified as “Vessels” in Maritime terms.

There currently exists an urgent requirement to remediate the Outer Caisson gate, situated at the Durban dry dock, to ‘Fit for Operation’ condition so that it can be put back into service. The Caisson was decommissioned in 2013 due to progressive structural capacity loss, due primarily to corrosive damage of its internal steelwork structure. The approximate dimensions of the Caisson are (lengthxwidthxheight) 36x6x15m and its approximate weight is 600tonnes.

The *Works* to be provided are the demolition and waste disposal, structural repair, welding, modification and replacement of structural members and plates, sealing faces structural repairs, design and fabrication certification, commissioning and hand over for operation to the Durban dry-dock.

Note: Only Contractors who can demonstrate sufficient recent experience in refurbishing heavy industrial or maritime structures will be considered acceptable for executing this work. The Contractor shall supply sufficient experiential information and references with the tender to enable the Employer to determine their level of experience.

1.2 Employer’s objectives

The Employer, Transnet National Ports Authority, requires the *Works*, comprising the complete repair, remediation and rehabilitation to "Fit for

Operation" condition of the Outer Caisson at the Durban dry dock to be carried out.

Note: The dry dock is an operational environment requiring the Works to be planned and executed in a manner which results in minimal operational disruption and this requirement is considered to be a primary concern of the Employer.

The Works pertinent to the Caisson are the following:

Description of the Works	Location
Separation of the Caisson along deck lines C and D into 3 compartments including installation of all temporary bracing steelwork required to maintain squareness and prevent distortion of the component structures	Dry dock
Demolition, rebuild to conform to approved design and fabrication drawings (by others) and reinstallation of Deck A walkway structure and handrails	Dry dock/Suppliers Workshop
Complete structural remediation of Caisson compartment between (Deck "B" to "C") including hull sheeting and all associated structural stiffening members as required	Dry dock
Complete structural remediation of the Caisson Sealing faces and associated structural steelwork, Greenheart wood (supplied free-issue to the Contractor) and rubber gasket installation.	Dry dock
Seal welding of all existing internal and external rivet heads as required to negate corrosion	Dry dock
Complete structural remediation of Caisson Trunks including extension of the Trunks to Deck A walkway structure as well as remediation of all piping and valves as required	Dry dock
Repair / install sea weed grating (round bars) as per original condition on Port and Starboard side between "B" and "C" Deck	Dry dock
Redesign and Replacement of all Caisson access ladders as required	Dry dock/Suppliers

	Workshop
Complete re-fabrication of Caisson centre compartment (Deck "C" to "D") in sections (at the <i>Contractor's Workshop</i>) to conform to approved design and fabrication drawings (by others) and transport to site	Suppliers Workshop
Remediation of Caisson lower slide structure and Roller plates as required	Dry dock
Replacement of riveted connections with welding throughout the Caisson wherever possible and sealing via welding of void rivet holes	Dry dock
Re-assembly of Caisson compartments	Dry dock
Supply and application of Corrosion Protection to TNPA approved specifications and Jotun paint specification included in this document	Dry dock
Supply and installation of Anodes conforming to TNPA specification	Dry dock
Supply and install 2off diaphragm pumps to the attached specification with associated air piping including alignment, fixing and securing and all fixing elements.	Dry dock
Supply 1off 75kw portable helical screw type air compressor to comply with the attached specification.	Dry dock
Quality control, monitoring, documentation, generation of quality and management packs/dossiers	Dry dock/ <i>Contractor's Workshop</i>
Pressure testing of all Caisson tanks, deflection testing of the Caisson structure while in operation and Commissioning Activities	Dry dock

And any other work arising out of or incidental to the above, or required of the Contractor for the proper completion of the Works in accordance with the true meaning and intent of the contract document.

It is envisaged that the project shall be rolled out as follows:

-
- Detail inspections of the Caisson including rivet removals at internal and external joints and connections in order to determine underlying rivet shank to steel corrosion extents;
 - Preparation of all remedial designs and fabrication drawings required;
 - Registration with and approval of proposed designs, repair proposals by an approved Third Party Inspection Authority
 - Take Caisson apart at its deck levels by isolating and disjoining at its definite structural split lines
 - Dismantling of the Caisson structure in sections and transport to fabricators *Workshop*
 - Fabricate new Deck A and compartment between Decks “C” to “D” in fabricator’s *Workshop*. Deliver to site and lift and secure in position
 - Replace all riveted structures and joints between Decks A, B, C, D and E as required with remedial welding to ensure water tightness and future maintainability
 - Pressure/ Water test repaired Caisson to ensure water tightness
 - Obtain statutory certificates for the repairs

On award the *Contractor* shall provide a well thought-out and highly detailed implementation programme to allow a smooth execution of the project.

1.3 Location of *Works*

All *Works* are located at the Durban dry dock, shown in the following diagram:

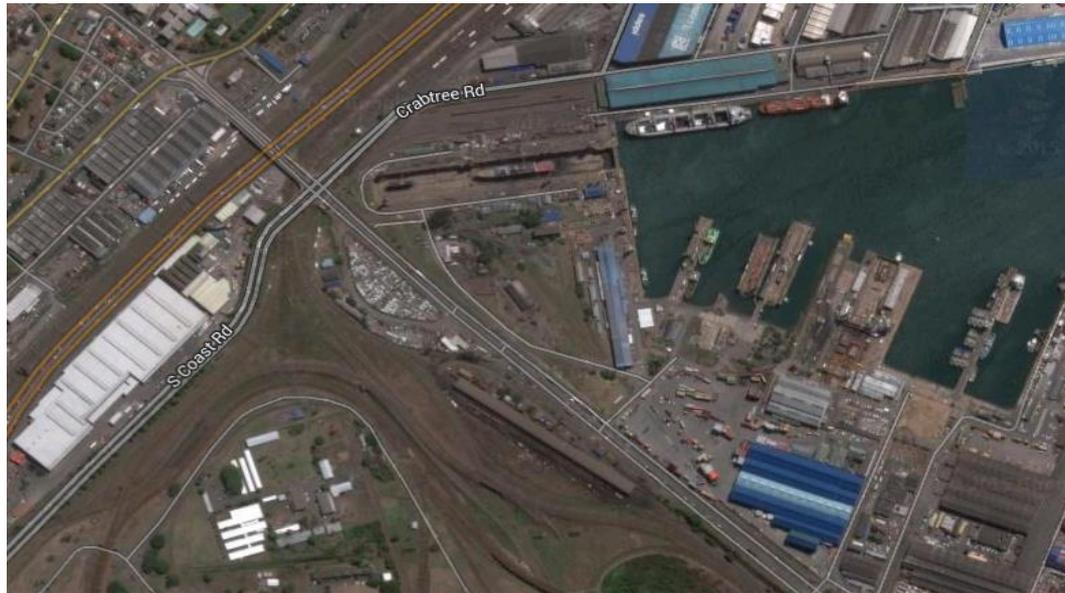


Plate 17- View of graving dock looking towards caisson, taken from the head of caisson, December, 1911



The Graving dock was conceptualised in 1911, to accommodate repair works for war vessels and to be the largest dock in the world.

- Feasibility – Designs & geotechnical investigation
 Period – 1912 to 1919 (7 years)
- Execution – Construction works
 Period – 1920 to 1925 (5 years)
- Contractor – South African Rails & Harbours
- Commercialisation – 04th June 1925
- Age – 99 years

GRAVING DOCK			
Parameters		Operating capacity	
Length (m)	350	Tugs	4
Width (m)	33.5	Fishing Boats	8
Design depth (CD)	11.3	1st, 2nd, 3rd Generation Vessels	2
Max Avail depth (m)	10.8	Panamax Vessels	
Cranes	6	(max length - 240m)	2

1.4 Access to the Works

Access to the Works will be via existing public road networks, the main access point situated along Bayhead Road.

Access will be subject to the Employer's security and SHREQ requirements and regulations. Due allowance must be made for any potential delays arising from vehicular congestion due to the large number of trucks that use Bayhead Road.

1.5 Interpretation and terminology

The following abbreviations are used in this *Works Information*:

Abbreviation	Meaning given to the abbreviation
CA	Contract Administrator
CQA/QCM	<i>Contractor's</i> Quality Assurance/Quality Control Manager
CDR	<i>Contractor</i> Documentation Register
CDS	<i>Contractor</i> Documentation Schedule
CSHEO	<i>Contractor's</i> Safety Health and Environmental Officer
CHSMP	<i>Contractor's</i> Health and Safety Management Plan
CM	Construction Manager
PSIRM	Project Site Industrial Relations Manager
PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProjM	Project Manager
ProjEM	Project Environmental Manager
ProjEO	Project Environmental Officer
QA	Quality Assurance
SANS	South African National Standards
SES	Standard Environmental Specification
SHE	Safety, Health and Environment

Where in these documents the words TNPA is used, read "TRANSNET NATIONAL PORTS AUTHORITY".

Where in these documents the words or expression "Engineer" or "engineer" is used, read "Project Manager" or "Supervisor" as the context requires.

2 ENGINEERING AND CONTRACTORS' DESIGN

2.1 Employer's design

The Employer supplies the following:

- *Works Information*

- Technical specifications or reference thereto
- Engineering Drawings appended herewith
- Bills of Quantities

The following “Transnet General Specifications” are applicable:

Hydraulic Equipment	EEAM-Q-002
Structural Steelwork	EEAM-Q-006
Compressed Air Systems	EEAM-Q-007
Corrosion Protection	EEAM-Q-008

The following “Material Specification” is applicable:

- S235J2W or S235JOW (...J2W preferred)

The following “Welding Consumable Specifications” are applicable:

- Electrodes: BOEHLER E7018L AND OR SIMILAR APROVED
- MIG Wire: BOEHLER SG2 / BOEHLER EMK 6 AND OR SIMILAR APROVED
- Flux Core: BOEHLER TI 46-FD AND OR SIMILAR APROVED

The following “Corrosion Protection Specifications” are applicable:

- Jotun 60 month Corrosion Protection Specification and or similar corrosion protection that will be guaranteed for five (5) year and or more

2.2 Parts of the *Works* which the *Contractor* is to design

The *Contractor* provides the following:

- Engineering repair/fabrication packs for the *Works* which shall include as a minimum:
 - Individual repair proposals
 - Repair/fabrication drawings for the *Works*
 - All associated approved welding procedures
 - Detailed Quality Control Plans
 - Relevant specifications for *Works* conformance
 - Detailed Bills of Quantities

The *Contractors* obligations as contained in this document shall be deemed to cover the following items:

- The project scope shall include the erection of all Plant and Materials as required for completing the *Works*. The *Contractor* shall supply all necessary manpower, labour, supervision, materials, services and testing devices for all aspects of this project as indicated hereunder and the *Contractors* quoted amount for the *Works* shall be deemed to cover all cost and expense thereof;
- Project Management of the complete scope of work including planning, scheduling and reporting verbally to the Engineer on a daily basis. Weekly written progress reports shall be issued to the Engineer for approval;
- Implementation of an appropriate quality system including stringent quality control for all Plant and Materials stipulated in this document;
- Submission of a quality control plan (in accordance with ISO 9000) and conforming to requirements as contained in this document;
- Submission of an detailed erection programme for all Plant and Materials to be supplied by Others;
- The *Contractor* shall allow for any relevant information gathering exercises e.g. sample extraction and testing, dimensions, layouts, access routes, review surrounding structures, identify rigging points, checking, etc., to ensure that all Plant and Materials shall be erected in accordance with all the TNPA specifications and requirements;
- Selection of appropriate codes of practice, standards and specifications applicable to the *Works*;
- Remove, replace, modify, reinstall and make good all existing equipment, Plant and Materials as required to facilitate the Erection of all new Plant and Materials. This shall also include all piping, valves, steel members and sheeting elements;
- Supply, installation, statutory compliance to relevant Codes and Standards and safe storage of all Plant, Equipment and Materials required to completely negate the detrimental effects to construction progress resulting directly or indirectly from loss of electrical power on site;
- Mechanical fitting and alignment of all motors, gearboxes, couplings, pulleys, belts, sprockets, chains, bearings, seals, base plates, etc.;
- Installation of all chemical anchors, bolts, fasteners, washers, nuts, clamps, brackets, fixing and securing elements as required;
- All specialized equipment, tools, brackets, supports, packers, shims, etc., necessary to complete the *Works* in accordance with manufacturer's specifications, appropriate codes and the Project Standards;
- Supply of all construction lighting and associated support structures, access platforms, etc. as required for the successful Erection of all Plant and Materials;
- The *Contractor* shall, under the direction of the Engineer, carry out all hydraulic pressure testing on all Plant as required and in accordance with the

Employers specifications. This shall include ensuring all necessary testing equipment such as bolts, gaskets, spades, hoses, flanges, plugs, test pumps, gauges, etc. are supplied;

- The *Contractor* shall engage the services of a certified (by relevant South African statutory organisation) welding inspection organisation for the execution and performance of all NDT, dye pen, Ultrasonic, X-ray and any other testing as required on all remediation work installations as is required by the appropriate codes, standards and the Project Standards.
- The *Contractor* shall plan, in detail, the installation and erection sequence of the Plant and Materials to allow for accessibility for rigging purposes and the availability of respective pieces of Plant and Materials based on their delivery to site
- The contractor shall provide the dumping skips and make sure that they engage a suitable licenced waste contractor
- Within the Site, removal and disposal of all scrap and rubble generated by the *Contractor* to the scrap lay-down or dumping area;
- Site safety supervision, personal protection and safety equipment;
- Supply of all equipment and personnel required to comply with the Occupational Health and Safety Act, 1993. The *Contractor* shall take special note of the requirements of the latest editions of Construction Regulations;
- Comply with the Employers Environmental Management Plan;
- Complete all documentation to the satisfaction of the Engineer in order for the Taking Over Certificates as appropriate to be signed off by the Employer;
- Assistance during Test on Completion (Pre-Commissioning and Commissioning) which shall be co-ordinated and directed by the Engineer;
- The *Contractor* shall attend to all punch list items (Punch list A, B and C) as outlined by the Engineer upon the completion of the installation and during Tests on Completion (Pre-commissioning and Commissioning).
- Supply of all *Contractors* Documents, designs, drawings including all "As Built" drawings for Plant and Materials, specifications and details, NDT and hydraulic testing procedures and results.

2.3 Document Submission

The following documentation shall be included with the *Contractors* submission:

2.3.1 Safe working area plan

2.3.2 Emergency plan

2.3.3 Lifting/rigging studies

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- 2.3.4 Qualification documentation (all those resources involved with fabrication, quality, supervisory and HSE)
 - 2.3.5 Approved or evidence of approved welding procedures relevant to this Project scope of *Works*
 - 2.3.6 Insurance cover
 - 2.3.7 Detailed Method statements for the individual *Works*
 - 2.3.8 Supervision and site management plan
 - 2.3.9 Detailed Quality control plans
 - 2.3.10 Detailed Work instruction/procedures
 - 2.3.11 Quality control dossier
 - 2.3.12 Compilation of "Completion Certificates" certified by the Employer

2.4 Pre-preparation for *Works* execution

The *Contractor* shall initially, fully inspect the Caisson structure and immediately inform the Project Manager and Engineer in writing of any defects discovered during the inspection or working process that may affect the *Works* as detailed in this specification.

The *Contractor* shall compile all the necessary calculations to determine what bracing and/or strengthening is required to temporarily support the remaining members if they are to be removed in the process of the refurbishment.

The *Contractor* shall fabricate and install all bracing and strengthening as determined above and remove the bracing and strengthening, working platforms and similar after each section has been completed and signed off for acceptance.

The *Contractor* shall take all precautions necessary to prevent any damage to components especially to electronic components installed on structures (if any) which could be affected by the welding work if applicable.

2.5 General requirements for the *Works*

- Surface preparation and painting is done in accordance with the Jotun 60 month specifications as well as the Transnet specification **EEAM-Q-008**.

It shall be noted by the *Contractor* that all corroded areas are to be prepared to bare metal. Welding *Works* over primed metal has to be approved by the Engineer.

Should members or plates be found below acceptable thickness based on the original size these members/areas shall be replaced or repaired to the Engineers acceptance.

All connecting flanges and 'fish plates' on the internal structure shall be inspected and checked for corrosion, and internal Rivets are to be replaced with new welded connections as required. If Rivets are not corroded or loose, the Rivets can be left in place.

All Rivets are to be replaced by welding where the *Works Information* specifically requests their replacement.

All welds shall be checked for cracks. NDT or any other required weld testing procedure is carried out on at least 30% of all welds. Any cracks found are repaired. A welding procedure specification for the repairs of the cracks is provided by the *Contractor* to the Engineers' acceptance.

All welding consumable specifications stipulated herein shall be strictly adhered to.

Should the *Contractor* deviate from the project requirements, TNPA reserves the right to stop the *Works* with the *Contractor* to rectifying the areas of concern.

The *Contractor* shall provide a detailed method statement stipulating how the *Works* are to be carried out in a safe manner. The method statement is to include stability calculations, and indicate weight to be added to crane(s) to stabilize when lifting. (If required)

All cable tray brackets, stairways, walkway and platform stringers, brackets, bracing and gussets that have excessive corrosion shall be replaced. The Ladder(s) leading from "B" to "E" Decks are to be replaced with stainless steel 316L. The welding of stainless and mild steel has to be accomplished with 309L electrodes where a gap of minimum 1mm between the different steels is required.

2.6 Procedure for submission and acceptance of *Contractor's* design
The *Contractor* submits 1 (one) electronic copy and 2 (two) paper copies.

2.7 Review and Acceptance of *Contractor* Documentation
The Project Manager comments on the proposals and forwards the comments electronically to the *Contractor*.

(One) paper copy of the approved drawings is stamped 'Approved by Employer' and returned to the *Contractor*.

The approval of the any drawings and documentation by the Engineer is done in principle only and does not mean the approval of the details contained therein.

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- 2.8 Other requirements of the *Contractor's* design
N/A
- 2.9 Use of *Contractor's* design
N/A
- 2.10 Design of Equipment
N/A
- 2.11 Equipment required to be included in the *Works*
N/A
- 2.12 As-built drawings, operating manuals and maintenance schedules
- a. As-built drawings are due 14 days before the *Works* completion.
 - b. All submissions are in triplicate.
 - c. By submitting drawings, the *Contractor* represents that he has determined and verified all site measurements, site instruction criteria, materials, catalogue numbers and similar data, or will do so, and that he has checked and co-ordinated each of his drawings with the requirements of the *Works* and the contract documents, taking into account drawings of all other relevant disciplines.
 - d. At the time of submission, the *Contractor* informs the Engineer in writing of any deviation between the approved drawings packs and the requirements of the contract documents.
 - e. The Engineer will review and approve drawings with reasonable promptness (so as not to cause a delay) only for conformance with the design concept and the contract requirements.
 - f. The Engineer may, at his discretion and depending on the number of discrepancies, require amendment and resubmission prior to approval. Drawings are resubmitted until approved prior to any portion of the *Works* related to the drawings being commenced.
 - g. Should the *Contractor* during drawing amendment, alter any portion of his drawings not specifically required by the Engineer; he points this out in writing when resubmitting the drawing.
 - h. Approval of the *Contractor's* drawings is in no way indemnifies him from being responsible for the correctness of the drawings and satisfactory operation of the installation.
- 3 CONSTRUCTION
- 3.1 Temporary *Works*, Site services & construction constraints
- a. The *Contractor* complies with the Employer's Site entry and security control, permits, and Site regulations.

- b. The weight is restricted to 42 tones, and the crane must be positioned on the crane rails at the Dock Dock.
- c. The Employer provides coded ID cards to all *Contractors'* employees for access / egress of personnel (and Equipment) within the Site boundaries.

3.2 Site services and facilities

- a. For the duration of the Contract, the Project Manager provides an area, free of charge, for the *Contractor* to establish his offices, lay down areas, stores, *Workshops*, and other *Contractor's* Equipment.
- b. The Employer provides the following connections to services within the Site for *Contractor's* use:
 - i. 50mm Isolation valve for construction Potable Water.
 - ii. Circuit breaker for construction power at 380 Volts, 3-Phase and Neutral, 50 Hz.
- c. The *Contractor* provides a connection to the Employer's water borne sewage network. Where no suitable connection to a sewerage system is feasible, portable chemical type toilets may be used.

3.3 Facilities provided by the *Contractor*

- a. 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.
- b. All costs for preparation of the site establishment area are for the *Contractor's* account.
- c. The *Contractor* submits details of the layout of his site establishment to the Project Manager for his acceptance.
- d. The *Contractor* installs a metering device, accepted by the Project Manager, immediately downstream at each of the Employer's connections from where he draws services. The *Contractor* provides the Project Manager details of his monthly consumption of potable water and power.
- e. 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.
- f. The *Contractor* provides the Project Manager with a "Certificate of Compliance" (COC), by an "Accredited" Person as defined by the OHS Act, in respect of his construction power electrical installation. The

Project Manager only makes construction power available upon receipt of the COC.

- g. The Construction Manager (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.
- h. The *Contractor* provides, at his cost, a sufficient number of toilets and maintains them in a clean and sanitary working condition.
- i. The *Contractor* provides temporary lighting and fencing around every section occupied by him during the construction of the *Works*.
- j. 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 that area.
- k. The *Contractor* includes for all costs for such lighting and fencing, including access control into and out of these restricted areas.
- l. 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, 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.
- m. Upon completion, and within one month of the date of acceptance of the *Works*, the *Contractor* completely removes from the Site and Working Areas 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.
- n. No excess or discarded materials or Equipment may be buried or dumped within the port boundary.
- o. Demolition of all permanent and temporary structures, surfaces etc. shall be first approved by the Project Manager prior to the work being carried out.
- p. The Employer does not provide any security for the Site and Working Areas. The *Contractor* provides same and indemnifies and holds indemnified the Project Manager and Employer against any claims and actions that may arise out of Site and Working Area security.
- q. 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) which is in a roadworthy condition.

- r. Wherever the Employer provides facilities for the *Contractor's* use 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.

3.4 Co- operating with and obtaining acceptance of others

3.4.1 The *Contractor* performs the *works* and co-operates with The *Employer* (including the agents of the *Employer*) who operates on Site during the entire duration of the Contract period.

3.4.2 The *Contractor* performs the *works* and co-operates with Others, of whom the *Contractor* is to be notified once appointed by the *Employer*, who operate on Site during the entire duration of the Contract period.

3.4.3 The *Contractor* shall co-operate with Others by allowing access through parts of the Working Areas when required during the entire duration of the Contract period.

3.5 Excavations and associated water control

a. Probability of Asbestos Contamination in Excavations:

- i. The *Contractor* ensures his staff and labour are equipped with the necessary PPE and are trained to recognise asbestos contamination.
- ii. On encountering asbestos contamination, the *Contractor* immediately stops all work in the affected area, he summonses the Engineer and secures the area.
- iii. The Engineer arranges for a specialist waste disposal *Contractor* to collect, bag, remove and dispose the contaminated material from the excavation or bulk earth *Works*.
- iv. The *Contractor* continues with the excavation or bulk earth *Works* on receipt of a written instruction from the Engineer.

3.6 Underground services, other existing services, cable and pipe trenches and covers

a. As a guide only, the Project Manager provides the *Contractor* with drawing(s) showing various known existing underground services for his information. The position of these services is approximate and it is possible that other services exist which are not reflected, and which may affect the *Works*.

b. The *Contractor* establishes the location of the various existing services situated within the Site and Working Areas, and records all such

information on “marked-up” drawing(s) which remain available for reference at all times.

- c. The *Contractor* exercises due care and attention in carrying out any excavation work to avoid damage or disruption to existing services. The *Contractor* accordingly consults the Project Manager prior to undertaking any excavation work.
- d. Should the *Contractor* fail to exercise the requisite care and attention in carrying out the excavation work, the *Contractor* will be held liable for any claims arising out of damage caused by such excavation.

3.7 Control of noise, dust, water and waste

Before moving Equipment onto the Site, Working Areas and commencing operations, the *Contractor* submits his proposed methods of construction which demonstrate the measures taken to avoid and or reduce any nuisance arising from dust, noise and vibration for acceptance by the Project Manager.

3.8 Giving notice of work to be covered up

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 24 (twenty four) hours prior to the proposed covering up.

3.9 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 Areas. The *Contractor* plans and organises his work in such a manner so as to cause the least possible disruption to the Employer’s operations.
- b. The *Contractor* ensures the safe passage of *Contractor’s* traffic to and around the Site and Working Areas at all times that includes providing flagmen, protective barriers, signage, etc. for protection, direction and control of traffic as detailed in the project specifications
- c. The *Contractor* ensures that any of his staff, labour and Equipment moving outside of his allocated Site and Working Areas does not obstruct the operations of the Port. To this end access routes are allocated and coordinated by the Project Manager.
- d. The *Contractor* ensures that all his construction staff, labour, and Equipment remains within his allocated and fenced off construction area.
- e. All *Contractor’s* staff and labour working within Port’s boundary complies with Transnet National Ports Authority’s (TNPA) operational safety requirements and are equipped with all necessary personnel protective equipment (PPE).

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- 3.10 People restrictions on Site; hours of work, conduct and records
- a. The *Contractor* keeps daily records of his people engaged on the Site and Working Areas (including Sub-*Contractors*) with access to such daily records available for inspection by the Project Manager at all reasonable times.
 - b. The *Contractor* has access to the site from 07h00 to 17h00 daily on all working days Monday to Friday. The *Contractor* will be required to obtain permission from the Project Manager to Conduct *Works* out of the hours stipulated. Basic conditions of employment will be adhered to – a 45 hour week will apply, with a maximum of 10 hours overtime.
- 3.11 Title to materials from demolition and excavation
- a. The *Contractor* has no title to all materials arising from excavation and demolition in the performance of the *Works* with title to such materials remaining with the Employer. The Project Manager instructs the *Contractor* to label, mark, set aside and/or dispose of such materials for the benefit of the Employer in accordance with ECC3 Clause 73.1.
- 3.12 Cooperating with and obtaining acceptance of others
- a. The Employer (including the agents of the Employer) operates on Site during the entire duration of the Contract period.
 - b. Others, *Contractor* to be notified once appointed by the Employer, operate on Site during the entire duration of the Contract period.
- 3.13 Publicity and progress photographs
- a. 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.
 - b. The *Contractor* obtains the permission and approval of the Project Manager before erecting any notice boards or using the details of the contract in any advertising media.
 - c. The *Contractor* provides a complete digital photographic record of the progress of the construction of the *Works* to the Project Manager, monthly as part of the *Contractor's* monthly programme narrative report
- 3.14 Completion, Testing, Commissioning and Correction of Defects
- On or before the Completion Date, the *Contractor* completes everything required to Provide the *Works* including the work listed below which is to be done before the Completion Date and in any event 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
As built drawings as specified in the <i>Works</i> Information	Within 14 days prior to Completion.
Performance testing of the <i>Works</i>	To be conducted as the <i>Works</i> progress in order to satisfy the requirements of the Technical Specifications.

3.14.2 The *Contractor* is permitted to carry out the following *Works* after Completion

Defects during maintenance period.

3.14.3 Use of the *Works* is required before Completion has been certified

None.

3.14.4 Provision of materials, facilities and samples for tests and inspections

The *Contractor* provides the following:

- a. The *Contractor* is to provide all materials, facilities and apparatus required for any test and /or inspections required by the *Works* Information.
- b. The *Contractor* is to provide samples as required by the *Works* Information.

3.14.5 Access given by the Employer for correction of Defects

The *Contractor* complies with the following constraints and procedures of the Employer where the Project Manager arranges access for the *Contractor* after Completion:

- a. Safety, access control and work procedures as determined by the Ports Manager.
- b. These may be the same as communicated elsewhere within this *Works* Information as at the starting date / access date, or as the *Works* are now in use by the Employer's occupation of the Site, the same may be incrementally or substantially changed post Completion.

4 PLANT AND MATERIALS STANDARDS AND WORKMANSHIP

4.1 Investigation, Survey and Site Clearance

The *Contractor* carries out the following investigations at the Site:

- a. Conducts a detailed engineering investigation including all sampling and testing as required to determine the detailed scope of the remedial actions pertaining to the entire Caisson and quantifies these. The investigation and testing shall commence as soon as practicably possible after site establishment has been begun and shall be completed within a maximum period of 3 days. The *Contractor* shall inform the Engineer on completion of the investigation and shall submit a repair pack for approval within 5 days following this notice.
- b. Conducts an investigation to determine all the existing services on the site. Marks and records all these services.
- c. Maintains a concise record of the conditions of all existing site infrastructure and services

4.2 National Standards

The latest editions and/or amendments of the following Standards and Codes shall be considered a minimum requirement. In the event of differing requirements, the most stringent Code or Standard shall apply:

- a) Occupational Health and Safety (OHS) Act No. 85 of 1993;
- b) South African National Standards;
- c) DIN or British Standard Specifications. / DIN, EN and ASME Standard Specifications;
- d) N.O.S.A. Safety Guidelines;

4.4 Civil Engineering and Structural *Works*

4.4.2 Code of Practice for Steel Construction

The relevant sections of this document shall conform to the requirements of the SANS 1200 H Series of Standards.

4.4.3 Rolled Steel

All structural steelwork, except where otherwise stated, shall be of rolled steel and shall comply in every respect with SANS 1431 for evadable structural steel. Structural steelwork shall be designed in accordance with SANS 10162.

4.4.4 Steel Castings

Steel castings shall be sound, clean and free from all defects and distortion of any kind and should, except where otherwise specified, conform with the conditions and tests specified in SANS 407 : 2000 for the particular purpose according to service. They shall be thoroughly annealed and all working parts and bearing surfaces shall be machined and turned accurately with correct finish.

4.4.5 Steel Forgings

All steel forgings shall be free from flaws and surface defects of any kind and be accurately finished to the prescribed dimensions. They should conform to the conditions and tests specified in BS. No. 24, Part 4.

4.4.6 Workmanship and Finish to Steelwork

The workmanship and finish shall be of the best quality throughout with every individual part accurately made to size and form so as to fit exactly on erection.

Generally the workmanship on any steelwork shall be in accordance with the recommendations of SANS 1200H series & SANS 2001: CSI. Cutting of steelwork may be affected by shearing, cropping or sawing. Sheared or cropped edges shall be dressed to a neat and workmanlike finish and shall be free from any distortion.

All holes for turned and fitted bolts shall be accurately drilled or reamed and the diameter of the hole shall not exceed the finished diameter of the bolt by more than 0, 25 mm.

All steelwork which has been partially heated shall be properly annealed except in applications of minor detail.

4.4.7 Galvanising of Steelwork

This shall be in accordance with SANS 121: 2000 latest revision and the relevant Project Standards

Note: on National Standards: Where given, these are a minimum requirement, and not limited. Equivalent Standards are acceptable, but must be specified.

4.5 Electrical and Mechanical engineering Works

4.5.2 Code of Practice for the design of shipyards and sea locks

The relevant sections of this document shall conform to the requirements of BS 6349-3:2013 Maritime Works.

4.6 Materials, fabrication and finishing

All materials, where applicable, shall conform in respect to quality, manufacture, tests and performance, to the Project Standards, South African National Standards/the International Electro technical Commission, or where no such Standard exists, the appropriate British Standard. Materials not specifically stipulated shall be of the best commercial quality.

All welding activities performed by the *Contractor* shall be in accordance with appropriate codes, standards and the Project Standards and shall also include the following:

- 4.6.2 All welds shall be laid smooth and external welds strip polished;
- 4.6.3 All stainless steel and 3Cr12 welds shall be pickled and passivated.

4.7 Ease of Operation and Maintenance

All Plant and Materials supplied by the *Contractor* shall be designed and constructed for ease of operation and maintenance to ensure that the availability, reliability requirements and operating time efficiencies stated in the Specifications are achieved and maintained throughout the life span of the Plant and Materials.

The Following shall also be noted:

- 4.7.2 All operational, maintenance and inspection points shall be safely accessible;
- 4.7.3 All working platforms shall be wide enough for safe and easy passage

The *Contractor* shall provide a specification and procedure that shall suggest the safest and most efficient operation to carry out the cleaning and maintenance of all Plant and Materials to be supplied by the *Contractor* as well as outline and supply all specialist tools required for these operations.

4.8 Safety equipment and name plates

The *Contractor* shall secure all safety equipment, guards, notices and nameplates associated with all Plant and Materials erected by the *Contractor*. This will include but is not limited to the following items:

- 4.8.2 Hot surface guards
- 4.8.3 Railings and chains
- 4.8.4 Signage and notices
- 4.8.5 Name plates

4.9 Scaffolding

The Contractor shall contract with a certified scaffolding *Contractor* who will supply and erect all scaffolding. The *Contractor* shall manage their activities to ensure the timely and safe supply and erection of all scaffolding needed for the Erection of all work under this Contract as defined in the Scope of Work. The *Contractor* shall give the scaffolding *Contractor* 48 (forty eight) hours' notice of scaffolding required. No standing time or extension of time shall be claimed by the *Contractor* due to unavailability of scaffolding if 48 (forty eight) hours' notice was not given.

4.10 Erection Planning

The *Contractor* shall develop and submit to the Engineer a detailed erection plan for the erection of all Plant and Materials, 10 (ten) days after the award date. The erection plan shall outline the following as a minimum:

- 4.10.2 Critical Path definitions
- 4.10.3 Installation start Dates
- 4.10.4 All site progress meeting dates
- 4.10.5 Installation milestone dates
- 4.10.6 Installation and Erection completion dates

4.11 Rigging

Before undertaking heavy lifting and rigging, the *Contractor* must undertake a rigging study and all rigging activities must have the following in place:

- 4.11.2 The rigging study must be reviewed by the Engineer and the Employers Safety Officer prior to any heavy lifting and rigging activities being undertaken by the *Contractor*;
- 4.11.3 The rigging study must be co-ordinated with the overall site planning and activities schedule.

The *Contractor* shall supply all qualified and experienced personal required to effectively and efficiently position, align, install and erect all Plant and Materials supplied (by others) in a timely manner. This shall also include the installation of all rigging equipment fixed and mobile, such as crawl beams, crawls, "A" frame, gantries, hoists, etc. as required to lift, suspend, position and align, etc.; all Plant and Materials in their respective positions and in accordance with the manufacturer's specifications and the Project Standards.

4.12 Workmanship

The *Contractor* shall only employ competent staff to execute the *Works* and submit a competency and compliance certificate of each employee (e.g. welding certifications or certificates, fitter qualifications, etc.) to the Employer for approval.

The Contract shall be executed in accordance with good engineering practice and the relevant standards, codes, statutory requirements and the Project Standards applicable to the satisfaction of the Employer.

Should any material or workmanship supplied and performed by the *Contractor* not be to the satisfaction of the Engineer/Employer; it shall be rectified at the cost of the *Contractor* and all rejected material removed from Site. The *Contractor* shall be responsible for the correct and complete installation of all Plant and Materials supplied by others.

Inspections by the Engineer shall not release the *Contractor* from his responsibilities within the Contract unless covered by a formal Take Over Certificate.

4.13 Painting and Corrosion Protection

The *Contractor* shall carry out all preparation, priming, protection coating, painting and finishing activities as required in accordance with both the Project Standard Technical Specification for Corrosion Protection as supplied by TNPA as well as 'Jotun Paint Systems' included as part of this document.

The final coat of paint or touch ups on Plant and Materials supplied by others shall be done by the *Contractor*.

Touch ups shall be limited to any damages, scratches, scraps etc. which occurred during the offloading, storage, retrieval, assembly, positioning, alignment, installation, erection and securing of all Plant and Material or unless approved by the Employer. All painting activities shall be undertaken by competent personnel supplied by the *Contractor*.

4.14 Lubrication

The *Contractor* shall ensure that all initial fluids, lubrication oils and greases, associated mechanisms and equipment required by all Plant and Materials and supplied by others are installed correctly and in accordance with the manufacturer's specifications. This shall also include consumables such as oil filters and chemicals, etc.

The *Contractor* shall ensure that all Plant and Materials installed, modified, removed and reinstalled by the *Contractor* are correctly lubricated prior to Commissioning.

4.15 Health, Safety and Environmental requirements

The *Contractor* shall comply with all applicable health, safety and environmental regulations and requirements for all persons entitled to be on the Site.

The *Contractor* shall be responsible for the precautions and measures to ensure the health and safety of all individuals on the Site and temporary areas (if applicable) outside of the Site, but utilised by the *Contractor*, with the prior approval of the Employer.

This shall also include any areas that may adjoin those areas or otherwise be affected or potentially endangered by the *Works*. The *Contractor* shall be responsible for the adequacy, stability and safety of all Site and Temporary Areas operations, methods of construction, all *Contractor's* Equipment, Temporary *Works* and structures.

The *Contractor* shall provide and/or install for all necessary safety protection equipment (e.g. rotating parts guards, hot surface insulation/guards, railings) and necessary *Contractor's* Personnel, in accordance with the applicable legislation in South Africa, including the Occupational Health and Safety Act (1993) of South Africa. The *Contractor* shall take special note of the requirements of the Construction Regulations, 2003.

The *Contractor* shall comply with the Employer's Environmental Management Plan Requirements.

The Plant's noise level shall be less than 85 dBA when measured at any point further than three metres from the source(s) of the noise.

4.16 Quality Control Plan

The QCP shall be approved by the Engineer and shall conform to the requirements of ISO 9001 (2000) and shall incorporate the following as a minimum:

4.16.2 A detailed organisation chart;

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- 4.16.3 A list of *SubContractors*;
 - 4.16.4 A list of the applicable quality assurance procedures;
 - 4.16.5 A list of applicable Codes and Standards for design, construction, inspection and tests;
 - 4.16.6 The *Contractor's* inspection plans;
 - 4.16.7 Any *SubContractor's* inspection plans;
 - 4.16.8 Provisional programmes for expediting *Works* to be executed by *SubContractors*;
 - 4.16.9 Procedures to manage the non-conformance of Plant and Materials
 - 4.16.10 An audit schedule for *Contractor/SubContractor* activities.

The QCP shall indicate Hold Points and Witness Points proposed by the *Contractor*. The Engineer will determine, in consultation with the *Contractor* and the Employer, and notify the *Contractor*, the Hold Points and Witness Points to be witnessed by the Engineer and/or the Employer.

The Taking-Over Certificate shall not be issued to the *Contractor* until all the Hold Points on the QCP have been witnessed and approved by the Engineer and/or Employer as required.

The *Contractor* shall be responsible for updating the QCP regularly throughout the Contract. The QCP shall be required to demonstrate compliance with the requirements of the Contract.

The Engineer shall be entitled to audit any aspect of the QCP and details of all procedures and compliance documents shall be submitted to the Engineer for information, before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the *Contractor* itself shall be apparent on the document itself.

The *Contractor* shall maintain the *Contractor's* Data Book for the *Works* at all times, and the *Contractor's* Data Book for the *Works* shall be made available to the Employer at all times during the Contract for review and approval by a Third Party Inspector.

4.17 Storage of existing Plant and Materials

Plant and Material to be stored for future use by the Employer shall be transported by the *Contractor* to a storage area to be advised by the Employer. All Plant and Materials shall as far as practically possible, be stored above the ground on wood block, palettes, etc.

4.18 Welders Certification

All welders employed by the *Contractor* shall be subjected to a welding test prior to carrying out any work on Site by an Approved Inspection

Authority employed by the *Contractor*. These tests shall be co-ordinated and supervised by the *Contractor*. The testing process shall consist of each welder performing a series of test welds which shall be inspected by the Approved Inspection Authority to be supplied by the *Contractor*. The Inspection Authority shall provide the Engineer`s Third Party Inspection Authority and the Site Manager with full certification for all welders tested. The *Contractor* shall be responsible for the supply all test materials, welding rods, welding machines and any other material and equipment required to carry out the above tests.

4.19 Weld maps, weld inspection and weld failures

The *Contractor* shall allocate each welder a unique hard stamp number prior to starting any work on Site. These numbers shall be used by the *Contractor* to outline on each drawing the welds to be carried out by the relevant welders. These drawings shall serve as a weld map to be used by the Engineers Third Party Inspection Authority`s inspector during testing. In addition each welder shall hard stamp their own unique number next to each weld produced by them on Site. All hard stamps and hard stamp equipment and materials shall be provided by the *Contractor*.

The Engineers Third Party Inspector shall identify the welds to be tested by the *Contractor*. These shall include all NDT, X-ray; die pen or any other test as required by the relevant codes, standards and the Project Standards. For every weld failure, 2(two) additional equivalent tests shall be conducted for welds carried out by that same welder. Should these tests uncover further weld failures, testing of 100% of all that particular welder`s welds may be conducted by the *Contractor* under the supervision of the Engineers Third Party Inspector. In the event that 30% of all welds produced by a particular welder fail the tests carried out during the 100% testing period, that particular welder shall be immediately be removed from Site The cost of all the additional testing, all rectification work and the removal of unsuitable welders shall be for the *Contractors* account.

5 LIST OF DRAWINGS

5.4 Drawings issued by the Employer

Drawing number	Description
Structural Drawings	
PN 001	
PN002	
PN003	

SECTION 2

6 MANAGEMENT AND START UP

6.4 Management meetings

- 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. The *Contractor* attends management meetings at the Project Manager's request. These meetings are to be held fortnightly or as regularly as maybe determined by the Project Manager. At these meetings the *Contractor* presents all relevant data including safety, health and environmental issues, progress, quality plans, sub*Contractor* management, as may be required.
- c. Meetings of a specialist nature may be convened as specified elsewhere in this *Works* Information, or if not so specified, be convened by persons at times and locations to suit the Parties, the nature and the progress of the *Works*. Within five days of the meeting the person convening the meeting shall submit records of the meeting to the Project Manager.
- d. All meetings shall be recorded in a register, using minutes prepared and circulated by the person who convened the meeting. Such minutes (or register) shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the

person identified in the conditions of contract to carry out such actions or instructions.

6.5 Documentation Control

All documentation shall conform to the latest revisions of the following, i.e.:

- a. SANS 10111 - Code of Practice for Engineering Drawings, or
- b. ISO 9001:2000 - Quality Management Systems Requirements.

6.6 Safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure A to this *Works Information*.

6.7 Environmental constraints and management

The *Contractor* performs the *Works* and all construction activities within the Site and Working Areas in accordance with the provisions of the specification Standard Environmental Specification (SES), Project Environmental Specifications (PES) and specification Construction Environmental Management Plan (CEMP) contained in Annexure B, C and D as well as section C of the Scope of *Works*

The *Contractor* ensures that its *SubContractors* comply with the requirements of the CEMP.

The CSHEO submits daily, weekly and monthly checklists as required by the CEMP to the ProjEM.

The CEMP is:

- a. *Contractor's* Declaration of Understanding.
- b. Environmental method statements for construction operations.
- c. Materials handling, use and storage.
- d. Re-vegetation and rehabilitation.
- e. Environmental closure certificate.
- f. Environmental inspections and audits.
- g. Environmental alignment meetings.

The roles and responsibilities of the various personnel acting on behalf of the Project Manager and who communicate directly with the *Contractor* and his key persons with respect to the CEMP and environmental issues are:

- a. The Construction Manager (CM) is responsible for environmental management on the Site and Working Areas and reports to the Project Manager with specific tasks to.
- b. Implementing the Employer's CEMP.
- c. Monitor *Contractor's* compliance to the CEMP.

The Project Environmental Manager (ProjEM) is responsible for ensuring that the *Contractor* complies with the CEMP and acts on behalf of the Project Manager.

The Project Environmental Officer (ProjEO) reports to the PSSM and ProjEM, conducts the day-to-day tasks to ensure that the *Contractor* complies with the CEMP and acts on behalf of the Project Manager.

6.8 Quality assurance requirements

6.8.2 Quality system

The supplier shall maintain an effective quality system in accordance with the relevant requirements of SABS/ISO9000 Series, or equivalent standard, to ensure and demonstrate that material, workmanship, procedures and services conform to the specified requirements.

A copy of the *Contractor's* / supplier's Quality Manual may be requested for review by TRANSNET followed, at Transnet's option, by Quality Assessments or Surveillance's to obtain evidence that a satisfactory quality system is being maintained.

6.8.3 Work Procedures Plan

Within a maximum of two (2) weeks following Contract Award or as per order condition, the *Contractor* shall produce a Work Procedure Plan. This Procedure Plan, as a MINIMUM, identifies the following:

- Order Number, Job Title.
- Organogram with nominated personnel, including signatures and initials.
- Scope of Job, Equipment, Structure(s)
- Basis for Designs and Fabrication, e.g. codes and specifications.
- Communication e.g. contacts address, telephone number, facsimile number, numbering systems and formats.
- Bar Chart (Time Schedule) for production, supplies and repair *Works* including Sub-Suppliers.
- Control documents, e.g. issuing and receiving, transmittals.
- Numbering of Documents.
- Specific Procedures and/or General Procedures list to be utilized.

- Internal Quality Audits and/or Surveillance's to be performed with actual dates.

6.8.4 Quality Control Plan

6.8.4.1 The *Contractor* shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of *Works*. The Quality Control Plan shall incorporate, as a minimum, an **INSPECTION CHECK LIST**. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, the records to be produced and similarly it shall incorporate all *Sub-Contractors* and suppliers activities. The Quality Control Plan shall be prepared on the *Contractors / Suppliers* standard format.

6.8.4.2 Deviations from this Quality Control Plan may only be permitted following acceptance in writing by the Engineer and/or the appointed Third Party Inspection Authority.

6.8.4.3 The *Contractor* shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent of Transnet.

6.8.4.4 During the review of the Quality Control Plan / Inspection and Test Plan, Inspection and Test intervention points will be included by Transnet and, where applicable, the Third Party Inspection Authority to indicate their intended monitoring during manufacturing, fabrication and installation.

6.8.4.5 The *Contractor / Supplier* shall ensure that any work sub-contracted will be covered by Quality Control Plans / Inspection and Test Plans generated by the relevant *Sub-Contractor* or Supplier.

6.8.5 Pre Inspection Meetings

Pre-inspection meetings may be held at the discretion of Transnet. In such cases, the content of the agenda shall include, but not be limited to, the following:

- Documentation: Method of Submission, review etc.
- Quality Control Plan: Agreement of inspection, witness, review and hold points, Agreement of contacts for notification, etc.
- Code Data book / QC Dossier: Agreement to contents and format.

- QC Procedures: Agreement to Scope.
- AIA: Authorised Inspection Authority requirements.
- Communications: Responsible persons.
- Non-destructive Testing: Personnel qualification, method and extend required.

6.8.6 Inspection

6.8.6.1 Definition: Inspection means all activities such as measuring, examining, testing, gauging one or more characteristics of material or service and comparing these with specified requirements to determine conformity.

6.8.6.2 Inspection Point Definition:

- **Hold Point = H:** This indicates an inspection or test which is considered vital to quality, integrity and safe functioning of the material or services and which can only be achieved at this point. The *Contractor* shall not proceed beyond this point beyond this point without written approval by Transnet and/or the appointed Third Party Inspection Authority.
- **Witness Point – W:** This indicates an inspection or test which may be equally as important as a Hold Point, but which can be waived by the appointed Third Party Inspection Authority or Transnet.
- **Review Point – R:** This indicates that information collected is required to be reviewed and approved. The job may continue past the review point, however, if the information is inadequate or does not satisfy the requirements, may necessitate additional work.
- **Inspection Points – I:** During the review of the Quality Control Plan, Inspection points will be added by Transnet and where relevant, the Third Party Inspection Authority to indicate the intended monitoring of the *Contractor's* and/or *Sub-Contractor's* quality control.

6.8.6.3 *Contractors* Inspection

The *Contractor* shall as a minimum, carry out the inspections as detailed in the Quality Control Plan and maintain the required records for verification by Transnet and/or Third Party Inspection Authority. For sub-contracted material or services, the *Contractor* shall ensure that controls are effective, including, where necessary, monitoring at the *Sub-Contractor's Works* and retention of the necessary records. Signing-off of the Quality Control Plan progressively by all relevant parties is a mandatory requirement following the indicated inspection activity.

6.8.6.4 Readiness for Inspection

6.8.6.4.1 Material or services shall be deemed ready for inspection by Transnet only when:

- Material or services shall be deemed ready for inspection by Transnet only when:
- The *Contractor* has firstly carried out his own inspection at the stage identified on the relevant Quality Control Plan and is satisfied that material, workmanship and services meet the specified requirements. Documented evidence shall be maintained by the *Contractor* including signing-off the Quality Control Plan.
- All applicable certificates and quality documents are available for review at the inspection location. Immediately following receipt by the *Contractor* ALL material and certification (including welding consumables), the *Contractor* shall review these certificates and endorse them "Verified to Code/Specification Requirements" including date and name. Immediately following, the material and certification shall be presented to Transnet and/or the appointed Third Party Inspection Authority for review and endorsement.

6.8.6.5 Notification of Readiness for Inspection

Notification by fax/email/ telephone is required for both Hold and Witness points at least two (2) working days in advance of “Readiness of Inspection” or as agreed at the pre-inspection meeting. Review points do not require prior notification.

- The *Contractor* shall ensure that the latest revisions of approved drawings and/or procedures with evidence of acceptance by Transnet, his nominated representative or Third Party Inspection Authority are available.
- *Contractors* are advised that it is a condition of Purchase / Contract that all costs of Transnet’s inspector, Engineer and/or Third Party Inspection Authority will be passed on to the *Contractor* for aborted inspection visits. A visit is considered aborted if:
- The *Contractor* / Supplier advises “readiness” for inspection and upon arrival of Transnet’s Inspectors, Engineer(s) or Third Party Inspection Authority, the material or Services and/or the associated documentation is not ready; or if Transnet’s personnel identifies that material or services are to specification such that the *Contractor’s* Inspector should have identified the non-conformity prior advising readiness for Transnet’s or Third Party Inspection Authority inspection.

NOTE: An inspection report to this effect shall be generated by the Transnet’s Inspector, Engineer or Third Party Inspection Authority and countersigned by the *Contractor’s* duly authorised representative. This report shall form the basis of back-charges to the *Contractor* / Supplier by Transnet. In addition, a non-conformance report shall be raised by Transnet, the Engineer or the Third Party Inspection Authority which shall be replied to by the Engineer within twenty-four (24) hours.

6.8.6.6 Inspection Waiver

Any Transnet Witness, or review or Hold point may, at the sole discretion of Transnet, be waived, which will be followed by an inspection waiver report.

6.8.7 Materials of Construction

All material shall be purchased and certified in accordance with EN 10204 ff. requirements as a minimum. The term “Purchaser” in EN 10204 shall mean the *Contractor*. The certificates shall report mechanical properties in the heat treated condition and must be accompanied by the relevant verified furnace charts.

6.8.8 Assessment/Audit/Surveillance

- 6.8.8.1 Transnet reserves the right to conduct a Supplier Quality Assessment, prior to the award of any Purchase Order, to verify that the *Contractor's* system complies with the relevant quality standard. Additionally, Transnet may conduct a Quality Assurance Audit or Surveillance at any time after the award of a Purchase Order. Four (4) days notification of a QA Audit and twenty-four (24) hours notification of a QA Surveillance will be given by facsimile / email to the *Contractor's* nominated QA/QC representative.
- 6.8.8.2 Should the *Contractor's* quality system be found deficient during their assessments, audits or surveillance's, the *Contractor* will be given opportunity to carry out corrective action within a period of time to bring his system up to the required standard. A follow up audit surveillance will be carried out to verify that the *Contractor* has carried out the necessary corrective actions.
- 6.8.8.3 If, during a follow-up audit or surveillance, it is found that the required corrective actions have not been carried out, Transnet reserves the right to take such actions as necessary to rectify the deficiencies. It is a pre-requisite that the *Contractor* fully supports any such actions
- 6.8.8.4 Surveillance by Inspectors will also be carried out by Transnet as an alternative method of monitoring the *Contractor's* quality control. This will normally take the form of a verification of a Section of the Quality Control Plan where the physical and documentary evidence will be required to verify compliance with the Quality Control Plan.

6.8.9 Non-Conformities

- 6.8.9.1 Non-Conformity is defined as a deficiency in characteristic, documentation or procedure which renders the quality of an item, work or service unacceptable or indeterminate in accordance with specified requirements. Such Non-Conformities shall be identified by the *Contractor/Supplier/Transnet* and/or Third Party Inspection Authority.
- 6.8.9.2 Such non-conformities require the issue of a Non-Conformity Report (NCR) by the *Contractor/Supplier* in compliance with his own QA system. The NCR then becomes the means by which the Non-Conformity is identified and triggers the need for corrective action and measures.
- 6.8.9.3 The non-conforming material, work or service shall be reviewed by the *Contractor* in accordance with documented procedures and it might be:
- Re-worked to meet the specified requirements
 - Accepted, with or without repair; or

- Re-graded for alternative application; or
- Scrapped

6.8.9.4 All proposed re-working or repair shall, together with the relevant procedures, be firstly reviewed by Transnet and/or Third Party Inspection Authority where applicable.

6.8.9.5 In the event that the Transnet Inspector and/or Third Party Inspection Authority identifies a Non-Conformity that is not subject to a *Contractor/Supplier* NCR, the Transnet Inspector and/or Third Party Inspection Authority will raise an NCR on the *Contractor*. The *Contractor* must issue to the Transnet Inspector in writing within twenty-four (24) hours a response indicating the corrective action he propose to make.

6.8.9.6 Material, work and services which do not conform to requirements shall not be used unless written authority, on the returned NCR, is obtained for the Non-Conformity.

6.8.9.7 The *Contractor* shall maintain a register of his NCR's and shall submit this register to Transnet monthly. The Engineer will audit the register. Transnet reserves the right to request copies of NCR's for review of deviation and disposition.

6.8.9.8 Corrective actions will necessitate additional inspections and/or tests shall be included in an updated Quality Control Plan which shall be submitted for review to Transnet.

6.8.9.9 The *Contractor* shall ensure that his procedures provide for the identification and segregation of all non-conforming materials, work or services.

6.8.10 Recording 'AS-BUILT' sizes

6.8.10.1 The *Contractor* shall complete the "as-built" details wherein all actual weld sizes, material thicknesses shall be recorded.

6.8.10.2 The actual point of measurement will be clearly indicated.

6.8.11 *Contractor* Document Submissions

6.8.11.1 When the *Contractor* submits his documents for re-view, he shall, where relevant, submit them to the Transnet document handling nominated contact.

Transmittals shall only cover one item per PO and shall be submitted in complete sets in order to perform a full review, e.g. WPS's, weld procedure, weld map summary, material lists and GA drawings and calculation, etc.

6.8.12 Handover Acceptance System

The Purpose of this system is to provide essential handover and acceptance information to all parties engaged in the construction, modification, demolition, refurbishment and commissioning of plant and equipment at the Durban dry-dock. The information and guidelines required to achieve a smooth sequence between all construction and commissioning activities, and thereafter the successful start-up operations and transfer of ownership of plant and equipment to Transnet, - Durban dry-dock.

6.8.12.1 This procedure provides for a sequenced, construction completion and checkout of plant / equipment leading up to the transfer of care, custody and control to Transnet.

6.8.12.2 This procedure adopts a two package handover system:

- Quality Control Dossier
- Management Package

6.8.12.3 Quality Control Dossier and Management Package Compilation

- The *Contractor* shall in accordance with this procedure and requirements in the Purchase Order / Technical Specifications, compile the Quality Control Dossier and Management Package with the accepted contents.
- The *Contractor* shall compile the Quality Dossier which includes the Code Data Book (format as stipulated in this document) in accordance with this procedure to ensure that all requirements have been met and the relevant documents are included in the Quality Control Dossier.
- For multiple disciplines e.g. new installations, fabrications, modification or welding *Works*, the QC Dossier shall be developed for each discipline or system.
- Management Package: consists of:
 - Completed "Punch-List", signed off by operations, area manager and the Engineers appointed 16.2 responsible for the area/unit.
 - Drawing Package "as-built"

- Vendor Data Documentation as per Bill of Material of detail designs and as built documentation.

The Engineer shall:

- Collect and compile the Management Package in accordance with this procedure, to ensure all requirements have been met. This ensures that:
 - The QC Dossier has been signed off by Transnet and the Inspection Authority (where applicable)
 - The plant/facility/equipment has been commissioned (or handed over) by and with operations,
 - All required performance tests have been successfully carried out by operations and maintenance department,
 - Copies of approved test run certificates have been inserted into the Management Package.
 - All maintenance documents have been updated and new instructions been inserted.

6.8.12.4 'Punch List' category Items

- Category 1: Items which compromise safety and integrity of personnel, plant, equipment and infrastructure.
- Category 2: Items which require correction prior operational acceptance.
- Category 3: Items which can be rectified after plant start-up and must be completed prior to final acceptance of plant or equipment.

6.8.13 Code Data Book

The Code Data Book shall have the following content and format:

- Cover Page:

- A MANUFACTURER / *CONTRACTOR*

- B ENGINEERING *CONTRACTOR* (if applicable)

- C AUTHORISED INSPECTION AUTHORITY (or certifying body)

- D PURCHASE ORDER NUMBER

- E CONTRACT NUMBER

- F EQUIPMENT / PLANT / *WORKS DESCRIPTION*

- G MAUFACTURERS SERIAL NUMBER (if applicable)

- H CODES AND STANDARDS USED

1. Index of Contents
2. Release of Notes (*Contractor/AIA/Client*)
3. "As-Built" drawings
4. Authorised Inspection Authority Certificate of Compliance
5. Design Calculations

6. MATERIAL AND CONSUMABLES CERTIFICATIONS

- 6 (a) Material List
- 6 (b) Material Map (Outline Drawings)
- 6 (c) Mill Test Certificates marked with item number.
- 6 (d) Heat treatment charts, NDE and mechanical testing.

7. WELDING DOCUMENTS

- 7 (a) Weld Map(s)
- 7 (b) Weld Procedure Specification Summary

- 7 (c) Welding Procedure Specifications
- 7 (d) Procedure Qualification Records
- 7 (e) Welder Performance Qualification Test Record Summary
- 7 (f) Weld Consumables Certification
- 7 (g) Pre- and Post heating Procedures
- 7 (h) Hot works permit to be complied with, Annexure E

8 INSPECTION REPORTS

- 8 (a) Quality Control Plan
- 8 (b) Dimensional Inspection Report (sizes etc.)
- 8 (c) Heat Charts and Certificates.

9 NON-DESTRUCTIVE TESTING DOCUMENTS

- 9 (a) NDT Map
- 9 (b) NDT Procedure Record Summary
- 9 (c) NDT Personnel Qualification Record Summary
- 9 (d) NDT Reports

10 PRESSURE TEST DOCUMENTS

- 10 (a) Applicable Standards
- 10 (b) Inspection Authority
- 10 (c) Pressure Gauge Calibration certificates
- 10 (d) Pressure Test certificate

6.8.14 Commissioning

6.8.15 Definitions

6.8.15.1 “Commissioning” is performed by the *Contractor* in presence of the Engineer to demonstrate successful installations, *Works* and functionality

6.8.15.2 “TESTING” is performed by the *Contractor* on its own to satisfy himself and to establish the “readiness” for commissioning.

6.8.15.3 “Test Runs” are performed by the Employers operational team in the presence of the *Contractor* were all functions shall be vigorously tested.

6.8.15.4 “Performance Test” is a fixed duration of continuous operation in which the Plant / Equipment shall perform without malfunction. This test is performed by the Employers operational team, - with or without the presence of the *Contractor*. The Equipment / Plant shall be tested to its Design Capacity.

6.8.15.5 “Endurance Test” a variant of the Performance test,- normally done at a lower rate than the Design Capacity but with extended Duration (up to 72 to 100hrs continually) were the equipment must perform without fault and malfunctions.

6.8.15.6 “Hand Over” a formal certificate issued for the continuous use in operation of plant and equipment at the successful passing of the Performance Test.

The *Contractor* submits his Quality Management System documents to the Project Manager as part of his programme under ECC3 Clause 31.2 to include details of:

- a. Quality Plan for the Contract
- b. Quality Policy
- c. Index of Procedures to be used and
- d. A schedule of internal and external audits during the Contract

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.

6.9 Programming constraints

6.9.2 Tender Program

A summary program, hereinafter referred to as the "Tender Program" for the duration of the contract are submitted by the *Contractor*, reflecting all Milestone deliverables and Events.

The level of this program must at least be "compatible" to the Price Schedule columns and or the breakdown of sections in the bills of quantities as applicable. The incidence of Payment Schedules or Cash Flow Forecast, submitted with the *Contractor's* program must be based on this program.

The *Contractor's* Programs are evaluated by the Project Manager to assess the *Contractor's* ability to plan his portion of the project to the extent necessary for the high degree of mutual co-ordination demanded by the Project.

Non-compliance with this specification may lead to the disqualification of the tenderer. At the Project Manager's discretion, the *Contractor* may be requested to prepare and submit a new Contract Program.

6.9.3 Initial Program, Contract Program and Subsequent Revisions

- a. The *Contractor* submits a program within 1 weeks of the date on which he was notified of having been awarded the contract / order.
- b. Any program submitted which does not supply all the required documentation set out in this document shall be deemed to be rejected, whether or not the Project manager does so in writing.
- c. This Initial Contract Program, hereinafter referred to as the "Initial Program", is be drawn up at the level of detail necessary in the opinion of the Project Manager to ensure effective control over the work, usually to Level 4 detail.
- d. A "Summary" or "ham-mocked" program is submitted with the Initial Program. The summarized activities are inserted in such a way that the Milestone Dates as well as major interfaces of services and/or other contracts logically required for the completion of the contract are clearly shown. The start and finish of the summarized or ham-mocked activities are clearly indicated on the detailed network.
- e. Unless stated to the contrary, the Project Manager will examine and comment on the Initial Program within 2 weeks of submission and the *Contractor* amends and submits this program, hereinafter referred to as the "Contract Programme" for approval within a further period of 5 days.
- f. The Project Manager may not in every instance be able to provide all information or working drawings, where applicable, of every aspect of the *Works* but such non-availability will not be deemed to be an excuse

for non-presentation of programs. In such instances the relevant part of the program should be based on the *Contractor's* best estimate with a statement on which assumptions or drawings it is based.

- g. Should the Project Manager so require, or should problems occur during the execution of the contract, the Project Manager might request that portions of the program be expanded to enable closer control to be exercised e.g. site construction and commissioning programs. In such cases the more detailed netWorks fit exactly into the logic and time span of the Contract Program, but may be presented as separate programs.
- h. Minor revisions to the Contract Program may be introduced from time to time by mutual agreement. Should the Project Manager require a major revision to the Contract Program, such revision will be specified to the *Contractor* in writing.
- i. The Project Manager specifies the date by which the *Contractor* is required to submit the revision in question. This date is not, unless otherwise agreed, be less than 2 weeks from the date of notice.
- j. Revised Payment Schedules are required based on the revised Contract Program. These revisions are made when changes occur in this program and must be updated every month to include actual payments.
- k. Should the *Contractor* require a major revision affecting the logic or dates of the program, such revision will be specified to the Project Manager in writing for approval before the revision is performed.
- l. A revision to the program does not invalidate the "Date of Completion" in terms of the General Conditions of Contract and as given in the appropriate schedules. Changes to these dates can only be effected through a contract amendment.
- m. Progress is monitored against the latest revised program and payments controlled by the latest revised Payment Schedule accepted by the Project Manager.

6.9.4 Progress Reporting

- a. The *Contractor* updates the program and supplies the progress reports to show actual and expected progress compared to the latest agreed Contract Program. Progress information may be verified by the Project Manager at any stage.
- b. Progress reports on design, manufacturing, shipping, transport and site progress are submitted separately as per Table 1: Progress Reporting Requirements.
- c. The methodology to define work content in the progress curves needs to be agreed to between the *Contractor* and Employer within 5 days of Contract Award and may include parameters such as man-hours, m³

- concrete, tons of steel, length of cable and cable rack to be installed, number of terminations, etc.
- d. The work content needs to be specifically designed to suit the type of work and to effectively indicate actual progress against planned progress.
 - e. Progress reports are submitted in line with the requirements as specified in the table below.

TABLE 1: PROGRESS REPORTING REQUIREMENTS

ITEM	DESCRIPTION	FREQUENCY
1.	General Planning Report and revised network if logic has changed since the previous report.	Weekly
2.	Critical Activities Report. (Look ahead)	2 Weekly
3.	Milestone Report.	2 Weekly
4.	Updated Bar Charts.	Weekly
5.	Updated Program Graphs.	Monthly
7.	Progress S-Curves.	2 Weekly
8.	Expediting Report	2 Weekly
9.	Milestones of Deliverables	2 Weekly

- f. The *Contractor* uses Microsoft Projects 2003 or later version for his programme submissions or a similar programme software package equivalent to Microsoft Projects 2003 or later version subject to and with the prior written notification and acceptance by the Project Manager.

6.9.5 Reporting and monitoring

The *Contractor* submits programme narrative report to the Project Manager at weekly intervals in addition to the intervals for submission of revised programmes stated under Contract Data Part One. *Contractor* submits monthly programme narrative report to the Project Manager.

The *Contractor* completes an assessment of all activities in progress and to completion to determine percentage complete, forecast completion dates, deviations from the Accepted Programme and proposes remedial actions to rectify deviations.

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*.

- a. 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; manpower histograms; plant and equipment histograms; S-curve of overall progress; and critical action items (top 10). Report indicates “progress this period” and “progress to date”.
- b. The *Contractor’s* weekly programme narrative report, updated and issued weekly, includes:
 - i. 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.
 - ii. 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.
 - iii. Manpower Histogram – reflecting actual, forecast and planned activities
 - iv. Plant and Equipment Histogram – reflecting actual, forecast and planned activities
 - v. S-curves – reflecting the actual percentage complete versus the planned percentage for the overall contract utilising the earned values.
- c. 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 indicates “progress this period” and “progress to date” and include, but is not limited to, the following:
 - i. Summary of progress achieved during the reporting period.
 - ii. Latest Accepted Programme.

6.10 *Contractor’s* management, supervision and key people

The *Contractor* provides an Organogram and Curriculum Vitae’s of all his Key people (both as required by the Employer and as independently stated by the *Contractor* under Contract Data Part Two) and shows how

such Key people communicate with the Project Manager, the Supervisor and their delegates.

The *Contractor* employs a CSHEO, based on the Site, as a key person under ECC3 Clause 24.1.

The CSHEO reports to the PSSM in respect of issues relating to safety risk management. The CSHEO submits the CHSMP to the Project Manager for approval and ensures that the *Contractor* implements the CHSMP.

The CSHEO reports to the ProjEM on the Site in respect of issues relating to environmental management. The CSHEO submits the CEMP to the Project Manager for approval and ensures that the *Contractor* implements the CEMP.

The CSHEO tasks include but are not limited to:

- a. Reports a safety incident to the Project Manager;
- b. Reports a safety incident to the Project Manager;
- c. Attends all SHE meetings, toolbox talks, induction programmes and monitors compliance with the CHSMP;
- d. Submits daily, weekly and monthly reports and data as required by the CHSMP to the PSSM;
- e. Reports an environmental incident to the Project Manager;
- f. Undertakes daily, weekly and monthly inspections of the Site and Working Areas as required by the CEMP and submits reports to the ProjEM;
- g. Monitors compliance with the CEMP and the environmental method statements submitted to the Project Manager; and
- h. Ensures the *Contractor* clears litter from the Site and Working Areas.

The *Contractor* employs a QA/QC Manager (CQA/QCM), based on the Site, as a key person under ECC3 Clause 24.1.

The CQA/QCM reports to the Supervisor. The CQA submits the PQP to the Project Manager for approval and ensures that the *Works* meet the standards stated in the *Works* Information.

The CQA/QCM tasks include but are not limited to:

- a. Maintains the comprehensive register of documents required by the PQP;
- b. Undertakes all inspections and testing required by the PQP;
- c. Prepares and regularly updates the CDR, and
- d. The *Contractor* employs a *Contractor's* Industrial Relations Practitioner (CIRP), based on the Site, as a key person under ECC3 Clause 24.1.

- e. The CIRP ensures that all reports and Industrial Relation requests are submitted accurately and in a timely manner to the Project Manager.

The CIRP tasks include but are not limited to:

- i. Dedicated to human resources, industrial relations and any other *Contractor* employee related function; Resolve all human resources and industrial relations matters arising from the *Contractor's* employees;
 - ii. The *Contractor* employs the *Contractor's* Planner (CP), based on site, as a key person under ECC3 Clause 24.1.
 - iii. The CP is based on the Site and is responsible for all construction programming, planning and reporting as stated under paragraph 2.6 of this *Works* Information.
- f. The CP tasks include but are not limited to:
- i. Undertakes the planning and scheduling of all activities comprising the *Works*.
 - ii. Ensures the *Contractor* submits the first and all subsequently revised programmes accurately and in a timely manner to the Project Manager.
 - iii. Ensures the *Contractor* submits programme narrative report to the Project Manager at weekly intervals.

6.11 Training Workshops and technology transfer

The *Contractor* facilitates the following requirements for training Workshops:

- a. A safety pre-mobilisation *Workshop*.
- b. *Contractor* employee safety training programme.
- c. The *Contractor* utilises local people for staffing up some of his requirements and ensures that there is adequate skills transfer taking place.

6.12 Insurance provided by the Employer

The insurance that will be provided by the Employer is as per the procedure manual contained in Part C1.

The procedure manual further details the cover to be arranged by the *Contractor* and sub*Contractors* as well as exclusions and deductibles.

The *Contractor* liaises with the Employer and the Project Manager at the Contract Date to declare the ECC3 contract details to the Employer's insurance brokers WILLIS SOUTH AFRICA (PTY) LTD.

Where the *Works* involve the assembly, erection and installation of Plant, the *Contractor* declares the full replacement value and not the value included in the ECC3 contract.

The *Contractor* liaises with the Employer and the Project Manager when a claim is made and assists in completing the Claims Advice Forms that are provided.

6.13 Contract change management

At the Contract kick off meeting, the *Contractor* will be provided with the format of the standard forms to be used for communication of Contract change management (ECC3 Clause 60).

6.14 Provision of bonds and guarantees

The form in which a bond or guarantee required by the conditions of contract (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

The *Contractor* provides a bond or guarantee as required by the conditions of contract concurrently with the execution by the Parties of the form of agreement for the ECC3 contract.

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

7 PROCUREMENT

7.4 Code of Conduct

Transnet aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support.

These are:

- a. The Transnet Procurement Procedures Manual (PPM);
- b. Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective;
- c. The Public Finance Management Act (PFMA);
- d. The Broad Based Black Economic Empowerment Act (B-BBEE);
and
- e. The Anti-Corruption Act.

- h. Proof of ownership of materials supplied.
- i. Copies of delivery notes of equipment
- j. Summary sheet of manning
- k. Summary of progress covered by invoice
- l. The invoice is presented as an original.

7.6 People

Suitably qualified and certified persons are allocated to tasks.

7.7 Subcontracting

Contractor does not employ or bring a *SubContractor* onto the Site and/or Working Areas without the prior approval of the Project Manager.

Where the *Contractor* employs a *SubContractor* who constructs or installs part of the *Works* or who supplies Plant and Materials for incorporation into the *Works* which involves a *SubContractor* operating on the Site and/or Working Areas, then the *Contractor* ensures that any such *SubContractor* complies with the CHSMP (described under paragraph 5.3 of the *Works* Information) and the CEMP (described under paragraph 5.4 of the *Works* Information) as appropriate and that the subcontract documentation places back-to-back obligations on the *SubContractor* which reflect the *Contractor's* obligations under the CHSMP, CEMP and PQP.

The *Contractor* ensures that a *SubContractor* complies fully with the *Contractor's* Quality Management System (as described under paragraph 5.5 of the *Works* Information). Quality system requirements are applied on all subcontracts to the point where the acceptability of supplies can be demonstrated solely by the conduct of inspection and/or examination of goods upon receipt at the designated point of delivery.

7.8 Plant and Materials

The *Contractor* provides all Plant and Materials for inclusion in the *Works* in accordance with the *Works* Information.

The *Contractor* replaces any Plant and Materials subject to breakages (whether in the Working Areas or not) or any Plant and Materials not conforming to standards or the specifications stated and notifies the Project Manager and the Supervisor on each occasion where replacement is required.

The Employer provides no "free issue" Plant and Materials.

7.9 Tests and inspections before delivery

At the discretion of the Project Manager some equipment and components is inspected at place of manufacturer before it is delivered to site.

SECTION 3

C3.2 Contractor's Works Information