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PART C3: SCOPE OF WORK

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C3.1 EMPLOYER’S WORKS INFORMATION

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SECTION 1

1 Description of the *works*

1.1 Executive overview

The Works are the Investigation of the current installation; undertake the design, purchase, installation, commissioning and maintenance of 128 split air conditioning units in the 16 business units throughout the Port of Cape Town to meet the applicable South African National Standards, OHS Act requirements, and Employer's specifications. The Works also includes the removal of the existing equipment. This scope also includes relevant builders work.

1.2 Employer's objectives

It is the objective of the Employer to achieve completion of the above works as soon as possible whilst still maintaining the highest quality and safety standards, without interfering with the normal day to day operations round and about the business units of the Port of Cape Town.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
TNPA	Transnet National Port Authority
SOC	State Owned Company
BBBEE	Broad Based Black Economic Empowerment
CEMP	Construction Environmental Management Plan
CD	Compact Disc
CDR	Contractor Documentation Register
CDS	Contractor Documentation Schedule
CRL	Contractor Review Label
CSHEO	Contractor's Safety, Health and Environmental Officer
CM	Construction Manager
DTI	Department of Trade and Industry
DWG	Drawings
EO	Environmental Officer
HAW	Hazard Assessment Workshop
HAZOP	Hazard and Operability Study
HSSP	Health and Safety Surveillance Plan
INC	Independent Nominated Consultant
IP	Industrial Participation
IR	Industrial Relations
IPP	Industrial Participation Policy
IPO	Industrial Participation Obligation
IPS	Industrial Participation Secretariat
IRCC	Industrial Relations Co-ordinating Committee
JSA	Job Safety Analysis
CIRP	Contractor's Industrial Relations Practitioner
Native	Original electronic file format of documentation
PES	Project Environmental Specifications
PHA	Preliminary Hazard Assessment

PIRM	Project Industrial Relations Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PLA	Project Labour Agreements
PSIRM	Project Site Industrial Relations Manager
PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProgEM	Programme Environmental Manager
ProjEM	Project Environmental Manager
QA	Quality Assurance
R&D	Research and Development
SANS	South African National Standards
SASRIA	South African Special Risks Insurance Association
SES	Standard Environmental Specification
SHE	Safety, Health and Environment
SHEC	Safety, Health and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
SSRC	Site Safety Review Committee

2 Engineering and the *Contractor's* design

2.1 *Employer's* design

- 2.1.1 Section 3 of this document details the Employers specifications.
- 2.1.2 The *Employer's* design for the *works* is a base-line specification which sets out the minimum technical, performance and contractual requirements. However, it does not include the final specification for the Air conditioning units.
- 2.1.3 The object of this base line specification is not only to ensure an optimum air conditioning solution but also to safeguard people and objects against risks of accidents during operation, maintenance and inspection work.
- 2.1.4 It outlines the minimum equipment required, but does not cover all the details of the design and construction. Such details are recognised as being the exclusive responsibility of the Contractor. It is hereby acknowledged that the Employer's Representative neither invented nor developed any part of the equipment, but has only made selections of capacities, speeds, materials and finishes, as well as specifying performance, operation, safety standards, duty rates and installation criteria as may be applicable.

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

- 2.2.1 The *Contractor* is to design the following parts of the *works*: an investigation of the current installation; undertake the design, purchase, installation, commissioning and maintenance of 120 split air conditioning units in the 16 business units in the Port of Cape Town.
- 2.2.2 The works shall include, but not be limited to, the inspection and survey of the existing equipment, the design, procurement, delivery and installation of new equipment to a fully functional Air conditioning solution.
- 2.2.3 The Contractor shall include the complete removal of all existing equipment including internal and external condensers and evaporators, including old piping, fixing brackets etc.
- 2.2.4 All builders work is also included within the scope where units and equipment are removed as well as where the new installation affects existing building structures.
- 2.2.5 The Contractor shall perform an energy efficiency study before and after installation of the air conditioning units

- 2.2.6 If the Contractor has optional extras over and above what is required under this specification, these extras shall be attached as a separate, priced list labelled "Alternatives".
- 2.2.7 The Contractor shall be fully responsible for his work and shall replace any of the same, which may be damaged, lost or stolen from the Commencement Date to the date of Practical Completion without additional cost to the Employer.
- 2.2.8 The Contractor warrants that the equipment and workmanship shall be of the highest grade, installed in a practical and first class manner in accordance with Best Practice and ready and complete for full operation at Works Completion.
- 2.2.9 Unless expressly stated to form part of the design responsibility of the *Employer* as stated under 2.1 *Employer's* design above and whether or not specifically stated to form part of the design responsibility of the *Contractor* under this paragraph 2.2, all residual design responsibility and overall responsibility for the total design solution for the *works* rests with the *Contractor*.

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

- 2.3.1 The *Contractor* shall address the following procedures:
- The Contractor's design shall be submitted as part of the tender submission and will be evaluated at the Technical Evaluation stage in line with the Employer requirements and specification in this document.
- 2.3.2 Documentation Submission
- In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard.

2.4 Review and Acceptance of *Contractor* Documentation

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

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

2.5 Other requirements of the *Contractor's* design

- 2.5.1 The *Contractor's* design complies with the following:
- The TNPA Port Engineering department will be responsible for compiling the overall requirements for the replacement. This will be based on the office or area sizes and BTU requirements. This information will be used by the Contractor to specify the equipment to be installed.
- The Contractor is responsible for the actual detailed design, final specifications and installation as well as conforming to quality control checklists.
- Selection of brands:** The contractor shall at execution only use one brand for the replacement of the air conditioners. This is to ensure standardization throughout the port and to facilitate maintenance ventures. The Contractor is to ensure and provide proof:
- That the manufacturer is a reputable name in the industry with records of previous installations.
 - The manufacturer is locally based
 - Spares and parts are locally available and manufactured; this includes critical spares such as condensers, evaporators, thermostats, pumps etc.
 - Spares are readily available
 - Proof of support from the manufacturer for the intended 10 year lifecycle

Environmentally Friendly: Air conditioning equipment is to be environment friendly.

Performance and Operation: Equipment provided to be capable of being maintained at optimum levels of operation, performance, reliability and safety for a period of not less than the expected life span of 10 years without the need for a further replacement.

Equipment: Air conditioning is to be considered top of the range by the manufacturer / supplier and shall be capable of meeting the highest safety, performance and operational requirements. Air conditioning equipment which is considered generic by the manufacturer and equipment sourced from numerous suppliers is not accepted.

Anti-Corrosive measures: The Air conditioners, particularly the external condensers are located close to harsh sea air that causes extreme corrosion within a short period of time. The contractor is to provide a suitable and proven solution to treat and prevent the units and it's relating equipment from deteriorating due to weather and marine environmental conditions.

Building management system: The contractor is to provide and recommend a building management system if available for the intended units. This can be attached as a separate, priced list labelled "Alternatives".

Security: There are certain areas in the Port that are more susceptible to theft and vandalism. The Contractor is to propose a solution to minimise and/or deter theft and vandalism particularly to outdoor units. This can be attached as a separate, priced list labelled "Alternatives".

Radio Frequency Interference: Provide only equipment sufficiently suppressed so as not to interfere with building communication and/or building management systems. Equipment provided shall not be susceptible to EMI.

Standards and Codes of Practice

All work is to be in accordance with the requirements of the particular South African National Standard (SANS), the Occupational Health and Safety Act 85 of 1993 as revised, as well as all other relevant published SANS Standards and current regulations of all other codes applicable to the work. Standards to be applied shall include, but shall not be limited to:

- SANS 10142-1 / Wiring of Premises – Low Voltage Installations
- SANS 10400 National Building Regulations
- SANS 10400 National Building Regulations
- SANS 10147 Refrigerating systems including plants associated with Air conditioning systems

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

2.5.3 The *Contractor* vests in the *Employer* full title guarantee in the intellectual property and copyright in the design data created in relation to the *works*.

2.6 Design of Equipment

2.6.1 The *Contractor* submits his design details for the following categories of his proposed principal Equipment to the *Project Manager* for his information only:

- The Contractor's complete and comprehensive Proposed Design offer, bearing in mind all limits and outlines set out in this document
- Method and/or any requirements for scaffolding
- Works plan when working within the office areas
- All Other design details relevant and as required for the project
- Emergency supply and procedure design

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

- The air conditioning brand
- The units' colours and finishing
- Unit locations if they are required to move to a different location within an area

2.7 Equipment required to be included in the works

2.7.1 None

2.8 As-built drawings, operating manuals and maintenance schedules

2.8.1 The Contractor provides the following:

Quality Plan	2 Weeks after Order	2 Copies
Safety Plan	2 Weeks after Order	2 Copies
Detailed Installation Plan	2 Weeks after Order	2 Copies
Manufacturers Date Book At Delivery	At delivery	2 Copies
Operating and Maintenance Manual	At Delivery	3 Copies
Electrical Wiring Diagram	After Commissioning	1 Copy
Type Test Certificates	After Commissioning	2 Copies

2.8.2 As-Built/Final Documentation

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard.

2.8.3 Layout Drawings

Layouts and coordination drawings for all work including equipment positions, piping, electrical, capacities, drainage, instrumentation positions and access requirements shall be included.

During their preparation, the Contractor shall take cognisance of all relevant architectural, structural, electrical and other services drawings in order to properly co-ordinate his layout.

2.8.4 Shop Drawings

Where possible, these shall be based on the General Arrangement drawings, and shall show in detail the construction of all the parts of the works, method of assembly, erection and construction, materials and connections, welds, gaskets, sealants, fastenings and all other necessary detail where applicable.

All drawings signed by authorised parties shall be submitted to the employer for review and acceptance before the installation of equipment on site. Any CAD drawings will be done using AutoCAD software package.

2.8.5 Installation, Maintenance and Operating Manuals and Data Books

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Data Books and Manuals' as mentioned above in 2.8.1 and the 'Contractor Documentation Submittal Requirements' Standard.

2.9 Equipment Guarantee and free maintenance period

2.9.1 Equipment supplied is to be guaranteed against defect or failure of design, material and workmanship for a period of Twelve (12) months from date of Works Completion/ Commissioning.

2.9.2 **Free Maintenance:** Twelve (12) months, a fully comprehensive free maintenance (service) is to be provided within the equipment guarantee period, including, but not limited to parts and other requirements due to faulty workmanship.

2.9.3 The completed installations shall be guaranteed and maintained by the Supplier for a period of twelve (12) months from the date of Works Completion. During this period the installation shall be maintained by the Contractor and any defective material, equipment or workmanship (excepting only proven wilful or accidental damage, or fair wear and tear), shall be made good with all possible speed at the Contractor's expense and to the satisfaction of the Engineer.

2.9.4 **Latent and Patent Defects Liability Period:** Equipment supplied is to be guaranteed against latent defect in design of material for a period of ten (10) years after date of Works Completion.

The contractor shall satisfy him/herself that the equipment to be installed is properly packed before shipping. No damaged or soiled equipment will be accepted at the site.

2.10 Maintenance Service period

- 2.10.1 At the end of the twelve (12) months free maintenance/guarantee period, The Contractor shall verify by means of a detailed stop/breakdown report that the equipment has performed reliably in terms of this specification and the Maintenance Agreement.
- 2.10.2 Until such time that the equipment is proven to operate reliably to the satisfaction of the Employer's Representative, the twelve (12) months free maintenance period shall be extended and considered valid at no additional cost to the Employer.
- 2.10.3 On conclusion of the Guarantee and Free Maintenance Period, the Contractor may be offered the opportunity to enter into the standard Employer's Maintenance Contract.
- 2.10.4 Tenderers shall include in their tenders a proposal for a subsequent 24 month Maintenance service Contract based on the Employer's Standard Maintenance (Service) Contract. Price offer to be submitted as per item 8 on the bill of Quantities.

3 Employers Specification

- 3.1.1 The *Employer's* specification for the *works* is a base-line specification which sets out the minimum technical, equipment and performance requirements. However, it does not include the final details of the design and construction. Such details are recognised as being the exclusive responsibility of the Contractor.
- 3.1.2 It is hereby acknowledged that the Employer's Representative neither invented nor developed any part of the equipment, but has only made selections of capacities, speeds, control systems, materials and finishes, as well as specifying performance, operation, safety standards, duty rates and installation criteria as may be applicable.
- 3.1.3 The scope of works encompasses, but not limited to, the replacement of about 120 existing split air conditioners within the 16 business units in the Port of Cape Town.

The works shall include, but not be limited to, the inspection and survey of the existing installation, the design, procurement, delivery and installation of new units and equipment to a fully functional and efficient system in accordance with the relevant regulations and this specification.

All equipment that is replaced must be removed from the site and returned to the electrical maintenance department.

A comprehensive maintenance plan and schedule for at least 2 years after commissioning and handover

If the Contractor has optional extras over and above what is required under this specification these extras shall be attached as a separate, priced list labelled "Alternatives".

- 3.1.4 Site locations

The works is to be implemented at 16 business units in the Port of Cape Town. They are listed hereunder:

- i. Electrical Light and Power Workshop (EL&P)
- ii. Corporate Services
- iii. HR / Procurement
- iv. Mechanical Workshop
- v. Fire Department
- vi. Civil Department
- vii. PWI Perway
- viii. Jetty 1
- ix. Berthing
- x. Pollution
- xi. Entrance buildings

- xii. Risk Building
- xiii. Robertson Drydock
- xiv. Sturrock Drydock
- xv. Syncrolift
- xvi. Dockmasters office

3.2 Site Conditions

Tenderers are to take cognizance of the existing site conditions. A site visit may be arranged with the Employer's Representative, if required. No claim for an addition to the contract on the basis of the prevailing site conditions will be entertained.

The Contractor is also responsible for checking and confirming the below conditions of the existing installation:

- Ambient conditions
- Correct BTU
- Air-conditioned indoor temperatures
- Noise generation and vibration
- Humidity
- Utilisation of area
- Amount of occupants
- Physical size
- Electrical power supply
- Routing for pipes

3.3 Electrical Installation

3.3.1 General

The Employer will provide a power supply cable to an isolator provided at the Air conditioning units. The Contractor shall bring all necessary power cables to this point. The standard electrical supply voltage is 240 V single phase at a frequency of 50 Hz. The supply will be solidly earthed with a neutral.

The Contractor shall connect the air conditioner units to the electrical isolator. It is the Contractors responsibility to ensure that the correct power rating and phase rotations are present at the isolator.

All inter-unit wiring and connections is the responsibility of the Air conditioning contractor.

3.3.2 Emergency Power Requirements

There are no emergency power requirements for the air conditioning units.

3.4 Piping and refrigerant

R-401A refrigerant is to be used as well as proper annealed copper piping sets for the refrigerant. The correct pipe cutting and flaring tools shall be used for cutting and bending of copper pipes as well as confirming to the bending radius limits of the piping.

All piping shall be adequately insulated as well as connection points sealed with heat insulators and tied with rubber straps. It should be made sure that no pipes or pipe connections have any leaks by performing leak tests and should be immediately sealed.

All nuts and bolts of the entire system shall be anti-corrosive stainless steel.

Where piping passes through building elements, all holes shall be sealed with suitable expanding foam.

All existing piping is to be removed and new piping installed for the installation.

3.5 Drainage Piping

Drainage pipes shall be round PVC piping strapped securely onto the building. Where piping is above ground they shall be extended all the way down to the ground and not be left to drip from a high level.

Where drain pipes run in the offices the Contractor shall insulate the pipes so that chilled condensation will not damage furniture or floors.

3.6 Internal Units

3.6.1 General

The general installation entails the complete removal of the existing air conditioning units and replacing it with a new more efficient air conditioner unit. The internal units shall be installed as per the manufacturer's guidelines for an efficient system.

The Contractor shall install the internal units in the same location where possible unless otherwise stated by the Employer or recommended by the Contractor.

Care should be taken when working in the offices of employees. The Contractor shall at all times keep office areas clean and tidy before and during installation, respect employees furniture and belongings. Any damage whatsoever to the property of the Employer or its staff will be at the cost of the Employer.

The Contractor shall confirm the building element that unit is to be installed on, i.e. Brick wall or dry wall partitioning. The contractor shall install and use the appropriate fixings for the intended installation.

If the Contractor has an alternative or updated technology, this should be specified as Alternative to this tender. The alternative should be complete with price comparisons and motivation for offering the alternative.

3.6.2 Evaporator Units

The details of the internal evaporator units are summarised as per the table below.

The specified information is only a minimum to the requirement of the internal units and is not limited to these parameters.

	9000btu	12000btu	18000BTU	24000BTU
Type	Indoor wall mounted Fan Coil unit (FCU) / Ceiling Cassette unit			
Function	Cooling and Heating			
British Thermal Unit	9000 BTU's	12000 BTU's	18000 BTU's	24000 BTU's
Cooling capacity	~2.5kW	~3.5kW	~5.0kW	~7.1kW
Heating Capacity	~3.5kW	~4.0kW	~5.8kW	~8.2kW
Air flow Rate	Cooling approx. 8.7m ³ /min	Cooling approx. 8.9m ³ /min	Cooling approx. 14.7m ³ /min	Cooling approx. 17.4m ³ /min
	Heating approx. 9.4m ³ /min	Heating approx. 9.7m ³ /min	Heating approx. 16.2m ³ /min	Heating approx. 21.5m ³ /min
Noise level	<30db	<40db	<44db	<46db
Refrigerant	R-410A			

**TRANSNET NATIONAL PORTS AUTHORITY
ENQUIRY / CONTRACT NUMBER TNPA 622/CIDB
DESCRIPTION OF THE WORKS: REPLACEMENT OF AIR CONDITIONERS AT THE PORT OF CAPE TOWN**

Energy efficiency Ratio (EER)	>3
Electrical requirements	1ph / 230V / 50Hz
	Inverter technology
Air Filters	Washable
	Photocatalytic air-purifying filter
	Mould-proof operation (Deodourising, Anti fungus and bacteria)
Control unit	Wireless remote control
	Capable of manual on/off without remote control
Remote control monitoring	Status
	Filter sign
	Temperature
	Fan speed and direction
	Operation Mode
	Features selection (intelligent eye, econo mode etc.)
	Set timer
	Clock
	Quiet operation
Timer	Automatic On/Off 24hrs
	Auto sleep mode
	Night Set Mode
	Home leave operation
Fan Speed	5-Speed Automatic
Airflow direction	Vertical automatic Swing
	Horizontal automatic Swing (optional)
	Wide angle Louvers
	3D Airflow
Management	Intelligent Movement sensor to detect occupants
	Econo mode
	Inverter technology
	Auto Restart

	Programme dry function to remove humidity
	Interface with a possible building BMS system
Aesthetics	Easy to wipe clean flat panel design
	Front grill design
	Colour White

3.7 External Units

3.7.1 General Installation

The general installation entails the complete removal of the existing air conditioning units and replacing it with a new more efficient air conditioner unit. The outdoor Condenser units shall be installed as per the manufacturer's guidelines for an efficient system.

The Contractor shall install the external units at ground level where possible unless otherwise stated by the Employer or recommended by the Contractor.

If it is not possible to install the external condensers on ground level then the support and fixings should be properly and securely installed. Scaffolding shall be erected and approved by the Employers SHE representative to install units at a higher level.

Condensing units shall be readily accessible for inspection and servicing.

If the Contractor has an alternative or updated technology, this should be specified as Alternative to this tender. The alternative should be complete with price comparisons and motivation for offering the alternative.

NOTE: The contractor is to provide a suitable and proven solution to treat and prevent the units and it's relating equipment from deteriorating due to weather or environmental conditions. This includes and is not limited to casings, fan grills, radiators, PCB's etc.

3.7.2 Condenser units

The details of the external condenser units are summarised as per the table below.

The specified information is only a minimum to the requirement of the external units and is not limited to these parameters.

	9000btu	12000btu	18000BTU	24000BTU
Type	Outdoor Condensing Unit (CDU)			
Function	Heating and Cooling			
Capacity	9000Btu/h	12000Btu/h	18000Btu/h	24000Btu/h
Compressor type	Hermetically sealed swing type			
	Reluctance DC Motor (600W output)	Reluctance DC Motor (600W Output)	Reluctance DC Motor	Reluctance DC Motor
Noise level	<47 db	<47 db	<47 db	<52 db
Refrigerant	R-410A			
Electrical requirements	1ph / 230V / 50Hz			

Air Filters	Washable			
Control unit	Electronic Control			
Fan Speed	Automatic with air direction control			
Piping	Long 20m	Long 20m	Long 30m	Long 30m
Dimensions (H x W x D) mm	550 x 765 x 280	550 x 765 x 280	735 x 825 x 300	735 x 825 x 300
Protection	Anti Corrosion Blue Chem treatment or equal and approved			
	Anti Corrosion treatment of heat exchanger fins			
	All screws/nuts/bolts etc. to be of Stainless Steel			
	Hydrophillic layer to prevent rain water from settling			

3.8 Cassette Units

3.8.1 General Installation

The general installation entails the complete removal of the existing air conditioning units and replacing it with a new more efficient air conditioner unit. The cassette units shall be installed as per the manufacturer's guidelines for an efficient system.

The Contractor shall install the internal units in the same location where possible unless otherwise stated by the Employer or recommended by the Contractor.

Care should be taken when working in the offices of employees. The Contractor shall at time keep office areas clean and tidy before and during installation, respect employees furniture and belongings. Any damage whatsoever to the property of the Employer or its staff will be at the cost of the Employer.

The Contractor shall confirm the building element that unit is to be installed on, i.e. rod fixings and supports. The contractor shall install and use the appropriate fixings for the intended installation.

If the Contractor has an alternative or updated technology, this should be specified as Alternative to this tender. The alternative should be complete with price comparisons and motivation for offering the alternative.

4 Construction

4.1 Temporary works, Site services & construction constraints

4.1.1 Employer's Site entry and security control, permits, and Site regulations

All employees working in the area will be required to have entry permits. These permits are obtainable from Transnet customer services on the ground Floor of TNPA House, South Arm Road in the Port of Cape Town.

Induction safety training is to be attended by all employees working on Transnet Premises.

4.1.2 The Contractor complies with the following permissions on site and on Transnet property as per requirements of the Employer:

- A letter from the Contractor shall be submitted to Customer services stating intended works as well as duration that the Contractor would need access to site. Included with this will be a referral from the Employer.

- Once this is in place, the Contractor shall acquire access permits as per 4.1.1 for each and every employee that is to perform works on site. It will be valid for the duration of the contract period.
 - As part of access control, each employee will undergo biometric finger scanning identification which will be used in conjunction with the access permit cards.
 - These access cards and biometric identification will also grant access at three entrance booms into the Port.
 - Employees are to ensure that these access cards are always in their possession.
 - Employees are to adhere and submit to random alcohol blow tests and vehicle searches at security check points throughout the Port.
- 4.1.3 Restrictions to access on Site, roads, walkways and barricades
- The Contractor employees are restricted to only the areas they will be performing the work.
 - Contractor employees are restricted from entering areas where the access cards do not allow.
- 4.1.4 The *Contractor* complies with the following access / egress permissions and restrictions for personnel and Equipment within the Site boundaries requirements of the *Employer*:
- The Contractor complies with the requirements stated under paragraph 2.3 of C3.1 Employer's Works Information.
 - A clear barrier and notification at each every work site.
 - A solid barrier to prevent any person from accessing or coming near to activities where work is taking place
 - All mandatory signage, notices etc. are to be provided by the Contractor and to the satisfaction of the Employer's SHE representative.
- 4.1.5 People restrictions on Site; hours of work, conduct and records:
- The hours of work are from 07:00 to 17:00. Should the contractor want to work overtime, a request shall be sent to the Project manager for approval.
 - The Contractor keeps daily records of his people engaged on the Site and Working Areas (including Subcontractors) with access to such daily records available for inspection by the Project Manager at all reasonable times.
 - The Contractor complies with the CEMP, SES and PES in the construction of the works, all as described under paragraph 2.4 of C3.1 Employer's Works Information.
- 4.1.6 Health and safety facilities on Site
- To be provided for by the contractor as per OSH Act and Construction regulations 2014.
 - Further, the Contractor shall abide to all Transnet health and safety regulations while on Transnet premises.
- 4.1.7 Environmental controls, fauna & flora, dealing with objects of historical interest
- There are no environmental control requirements during construction.
- 4.1.8 Title to Materials from demolition and excavation
- The Contractor shall have no title of ownership to any materials removed or demolished from the site.
 - With title to such Materials (as referenced above) remaining with the Employer. The Project Manager shall instruct the Contractor how to label, mark, set aside and/or dispose of such Materials for the benefit of the Employer in accordance with ECC Clause 73.1.
- 4.1.9 The *Contractor* performs the *works* and co-operates with:
- Transnet operational staff performing daily activities inside the TNPA House Building.

4.1.10 The *Contractor* keeps daily records of his Equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

4.1.11 Site services and facilities:

If the Contractor requires site accommodation, the Employer will provide the following:

- Power connection point
- Adequate and safe Access into the work area

The Contractor shall provide everything else necessary for the execution of the Works.

4.1.12 The *Employer* provides the following facilities for the *Contractor*:

The Contractor will stipulate as part of returnable documents in this tender, stating what his requirements are

4.1.13 Wherever the *Employer* provides facilities (including, *inter alia*, temporary power, water, waste disposal, telecommunications etc.) for the *Contractor's* use within the Working Areas and the *Contractor* adapts such facilities for use, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the *Employer*.

4.1.14 Unless expressly stated as a responsibility of the *Employer* as stated under 5.1.11 Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the *Contractor* to Provide the *Works* remains the responsibility of the *Contractor*.

4.1.15 Control of noise, dust, water and waste

Where the Contractor intends on doing works which will create dust and cause noise, the contractor shall take necessary steps to minimise the dust in the most effective way possible so as to prevent any TNPA staff being unable to perform their daily duties.

The Contractor shall inform the *Employer* when intending to perform tasks that may cause loud noise and disruptions so as to broadcast such disturbances beforehand to TNPA staff that will be affected.

4.1.16 **Sequences of construction** or installation

The contractor is to provide comprehensive details in the sequence of installation of the equipment with the approval of the Employer.

The Air conditioners are to be installed one building at a time in sequence of priority. The Contractor in conjunction with Employer's projects team will develop a method and for the installation of the Air conditioners and will be approved by the Employer prior to commencement of the works. The design and final requirements for the air conditioners efficiency will be the responsibility of the contractor.

TNPA and/or its representatives have full discretion to alter this sequence of work at any time during the contract, within reason, in special cases if necessary.

4.1.17 The *Contractor* complies with the following constraints in the execution of the *works*:

The contractor should be well aware that he will be working within the offices and personal space of Transnet staff. The Contractor shall clearly state how he intends to achieve a satisfactory working and safe environment when installing the units.

4.2 Completion, testing, commissioning and correction of Defects

4.2.1 The *work* to be done by the Completion Date

On or before the Completion Date the Contractor shall have done everything required to Provide the Works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The Project Manager cannot certify Completion until all the work listed below has been done and is also free of Defects, which would have, in his opinion, prevented the Employer from using the works and Others from doing their work.

Item of work	To be completed by
As built drawings of entire installation	Within 2 days prior to Completion.
Performance testing of the works	See performance testing requirements. Within week prior to Handover
Description of the system and equipment detail	Within 2 days prior to Completion.
User operating instruction and safety procedures	Within 2 days prior to Completion.
Complete set of layouts and engineering drawings	Within 2 days prior to Completion.
Complete set of principal / wiring diagrams	Within 2 days prior to Completion.
Certificates of Compliance, permission to install & concessions	At Handover
Test and commissioning certificates and data sheets	Within 2 days prior to Completion.
Copy of the Particular Specification	At Handover
Specimen copy of Maintenance Agreement	Within 2 days prior to Completion.
Maintenance procedure manual	At Handover
User Operation Manual	At Handover

4.2.2 Use of the *works* before Completion has been certified

The *Employer* will not use any of the equipment before completion has been inspected and tested by *Employers* representative.

The *Employer's* Representative will witness all the required tests required to complete the Test Certificates and will countersign them. At least three days' notice must be given to the Engineer prior to these tests.

4.2.3 Commissioning

4.2.4 The *Contractor* provides the following commissioning activities to bring the *works* in use in liaison with the *Employer*:

The *Contractor* is to provide these processes and procedures in detail in order to commission the Air conditioners.

4.2.5 Take over procedures

Takeover is after or at the same time as Completion. The *Employer* may require the *Contractor* to provide assistance, security personnel on a temporary basis etc.

The entire installation is to be checked and tested or re-tested to verify the safety of all equipment components whether new or retained and the Commissioning Document and Comprehensive Reports shall be completed in full. Words such as "not applicable" or "deemed to comply" or "existing" or similar wording are not regarded as valid information in terms of the required tests and/or checks.

Incomplete items or incorrect tests or checks noted on the mandatory Commission Document or Comprehensive Report will render the Commissioning Document and/or Comprehensive Report "Not Valid" and the entire document will have to be re-issued on satisfactory completion of all items noted.

4.2.6 The *Contractor* ensures that the documentation as described under paragraph 3.8 of the *Works* Information is presented to the *Project Manager* before Completion.

4.2.7 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of As-built documents that represent the entire electrical and mechanical status of the completed *works* (to include Plant within the *works*) to present to the *Employer*.

4.2.8 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of Maintenance and Operating Manuals at the earlier of take-over or Completion.

4.2.9 Access given by the *Employer* for correction of Defects

Upon prior arrangement, The *Contractor* will be granted access to the Equipment to correct any defects.

4.2.10 Performance tests after Completion

The Contractor performs the following performance tests after Completion of the works:

5 Plant and Materials Standards and Workmanship

5.1 Investigation, Survey and Site Clearance

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

Tenderers are to take cognizance of the existing site conditions. A site visit may be arranged with the Employer's Representative, if required. No claim for an addition to the contract on the basis of the prevailing site conditions will be entertained.

The Contractor is also responsible for checking and confirming the below conditions of the existing installation:

- Ambient conditions
- Correct BTU
- Air-conditioned indoor temperatures
- Noise generation and vibration
- Humidity
- Utilisation of area
- Amount of occupants
- Physical size
- Electrical power supply
- Routing for pipes
- Required Builders work

5.1.2 Provide all Builders Work, structural, mechanical and electrical work which is necessary for the proper and complete installation of the equipment. Builders work to be considered shall include but shall not be limited to:

- Erecting of scaffolding
- Drilling and fixing of supports
- Core drilling if required
- Safety barricades to close off working areas
- Protection of building and finishes during installation
- Painting and making good where units have been removed
- Cleaning of areas after installation (dust, etc.)

Tenderers must visit the site to clearly determine the anticipated scope of the Builders Work and associated costs and provide such detail in the tender under the heading "Builders Work".

5.2 Building works

5.2.1 Where the Association of South African Quantity Surveyors Model Preamble for Trades 1999 are used within the Works Information, the following interpretations and meanings shall apply:

5.2.2 In case of any conflict in interpretation, ambiguity or discrepancy between any Model Preamble for Trades 1999 (whether standard or written as a particular project specification) contained in the Works Information and the conditions of contract, the conditions of contract take precedence within the ECC Contract.

5.2.3 In case of any conflict in interpretation, ambiguity or discrepancy between any Model Preamble for Trades 1999 (whether standard or written as a particular project specification) contained in this paragraph 4.2 of C3.1 Employer's Works Information and specific statements contained elsewhere in C3.1 Employer's Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the Project Manager's express duty to resolve any ambiguity or inconsistency in the Works Information under ECC Clause 17.1.

- 5.2.4 Within the Model Preambles for Trades 1999, the following amendments and interpretations shall apply:

Where the word or expression "Principal Agent" is used, read "*Project Manager*" or "*Supervisor*" as the context requires.

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

Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires.

Where the Model Preambles for Trades 1999 mention "rates" for measured work and for any contractual statements relating to payment, all such statements shall be discounted, with the ECC *conditions of contract* taking precedence.

- 5.2.5 Within the Model Preambles for Trades 1999, A. GENERAL, the following amendments and interpretations shall apply:

Where the word or expression "bills of quantities" is used, this shall be discounted for the purposes of the *Works Information*. The ECC Contract Data - Part One states the main option to apply within the ECC Contract between the Parties.

- 5.2.6 Within the Model Preambles for Trades 1999, B. ALTERATIONS, B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC and C. EARTHWORKS, C1.4 Materials from demolitions shall not apply. C3.1 *Employer's Works Information* paragraph 3.1.6 states details of the *Contractor's* title (if any) to Materials arising from excavations and/or demolitions and how such Materials are either to be disposed of or re-used in the *works*.

- 5.2.7 Within the Model Preamble for Trades 1999 Q. PLUMBING AND DRAINAGE, Q.24 TESTS shall be deemed to be included within paragraph 3.2.1 of C3.1 *Employer's Works Information*.

- 5.2.8 Within the Model Preamble for Trades 1999 U. EXTERNAL WORKS, U.3.8 Process control tests shall be deemed to be included within paragraph 3.2.1 of C3.1 *Employer's Works Information*.

- 5.2.9 The principles, meanings and interpretation stated and established within paragraphs 6.2.1 to 6.2.8 with respect to the Model Preambles for Trades 1999 equally apply to the other Model Preambles for Trades 1999 references used within this paragraph 4.2 of C3.1 *Employer's Works Information*.

5.3 Electrical & mechanical engineering works

5.3.1 General:

Where SANS 10142 and/or SANS 10198 specifications are used within the *Works Information*, then, where the term "Equipment" (or the like) is used with the meaning of installation and items left behind in the *works*, please read this term as "Plant" for ECC defined term compliance.

The Employer will provide a power supply cable to an isolator provided at the Air conditioning units. The Contractor shall bring all necessary power cables to this point. The standard electrical supply voltage is 240 V single phase at a frequency of 50 Hz. The supply will be solidly earthed with a neutral.

The Contractor shall connect the air conditioner units to the electrical isolator. It is the Contractors responsibility to ensure that the correct power rating and phase rotations are present at the isolator.

All inter-unit wiring and connections is the responsibility of the Air conditioning contractor.

5.3.2 Emergency Power Requirements:

There are no emergency power requirements for the air conditioning units.

5.4 Stripping and redundant equipment

5.4.1 General:

All redundant material and material is to be stripped out and is to be removed from site by the Contractor. Redundant openings are to be closed up and un-used brackets, covers, panels removed and the site cleaned up.

Air conditioning units that are deemed usable shall remain the property of the Employer and shall be returned to the Electrical maintenance department for storage.

5.5 Drawings issued by the Employer

This is the list of drawings issued by the Employer at or before the Contract Date and which apply to this contract.

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Revision	Title
na	na	na

SECTION 2

6 Management and start up

6.1 Management meetings

The Contractor shall attend management meetings at the Employer's Representative's request. It is envisaged that at least one fortnightly contract management meeting will take place. The Contractor will also be required to attend a safety meeting once a month. The Contractor will also attend a kick off meeting and a close off meeting. The Contractor will be required to present all relevant information including early warnings of compensation events, quality plans, schedules, (including progress) subcontractor management, and health, environmental and safety issues at such meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Fortnightly	Port of Cape Town	Employer (or representative) Project Manager (and appropriate delegates), Supervisor (as necessary and appropriate delegates) and Contractor (appropriate key persons)
Overall contract progress and feedback	Weekly	Port of Cape Town	Employer (or representative) Project Manager (and appropriate delegates), Supervisor (as necessary and appropriate delegates) and Contractor (appropriate key persons)
SHE meetings	Fortnightly	Port of Cape Town	Employer SHE representative Project Manager (and appropriate delegates), Supervisor (as necessary and appropriate delegates) and Contractor (appropriate key persons)
Safety Pre-Mobilisation Meeting	Once before contract mobilisation	Port of Cape Town	Employer SHE representative Project Manager (and appropriate delegates), Supervisor (as necessary and appropriate delegates) and Contractor (appropriate key persons)

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

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

6.2 Documentation Control

The Contractor shall submit all documentation complying with the Employer's standards and requirements. The Employer will issue all relevant documentation and drawings, to the Contractor, but control, maintenance and handling of these documents will be the Contractor's sole responsibility and at its expense, and managed with a suitable document control system.

6.3 Safety risk management

- 6.3.1 The Contractor's attention is directed to the Safety, Health and Environmental Specification for the Port of Cape Town, Annexure 1 and in particular to his Tender Safety, Health and Environmental Audit Checklist, which must be submitted with his tender, as well as the requirements as laid down in the relevant SHE Legislation (i.e. Occupational Health and Safety Act, 1993 - Act 85 of 93, National Environmental Management Act, Act 107 of 1998, national Ports Act, Act 12 of 2005).

Without derogating from the legal requirements or any un-repealed regulations issued in terms of legislation, or without purporting to limit the Contractor's responsibilities, the following are brought to the Contractor's attention:

- a) Site/s, to be demarcated as agreed to between the Contractor and the Employer's Representative before the works start, will be transferred to the control of the Contractor for the duration of the contract.
- b) The Contractor shall appoint a health and safety coordinator to liaise on a daily basis with the Employer's Representative on matters pertaining to Safety, Health and Environmental.
- c) The Contractor is an 'employer' in his own right as defined in Section 1 of the Act 85 of 1993 and he shall fulfil all his obligations as an employer.
- d) The Contractor shall furnish the Employer's Representative with full particulars of any Sub-Contractor which he may involve in the contract and the Sub-Contractor shall be made aware of all the clauses in this contract pertaining to Safety Health and Environmental.
- e) The Contractor shall advise the Employer's Representative of any hazardous or potentially hazardous situation, which may arise from, work being performed either by the Contractor or Sub-Contractor.
- f) A letter of good standing in terms of Section 80 (Employer to register with the Compensation Commissioner) of the Compensation for Occupational Injuries and Deceases Act 1993 (Act 130 of 1993), must also be furnished. Please refer to the tender Evaluation criteria.
- g) The Contractor shall comply with the current Transnet National Ports Authority Safety, Health and Environmental Specification for the Port of Cape Town. Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act, Act 85 of 1993 and other legislation with Regulations, and shall, before commencement with the execution of the Contract, which shall include site establishment and delivery of construction plant, equipment or materials, submit to the Employer's Representative:
 - Documentary proof of his procedural compliance with the Act, and
 - Particulars of the Health and Safety Program to be implemented on the site in accordance with this Specification.

- 6.3.2 The Contractor's Safety, Health and Environment program will be subject to agreement by the Employer's Representative, who may order supplementary and/or additional safety arrangements and/or different safe working methods to ensure full compliance by the Contractor with his obligations as an employer in terms of the Act.

- All clauses in this contract pertaining to Safety Health and Environment form an integral part of this contract and if not complied with may be construed as breach of contract entitling the Employer to the appropriate remedies.

NB: The Contractor and his employees shall have valid safety inductions and medical certificates when accessing or working on site. Copies of these shall be submitted to the Employer's Representative. This will be at a time and location Transnet will arrange.

- 6.3.3 Hazard identification and risk assessment (HIRA)

The Contractor's appointed Site Representative and the Employer's Representative shall finalize a site-specific HIRA (Hazard Identification and Risk Assessment) document, on the day of site handover to the Contractor. This site-specific HIRA document, based on a continuous HIRA, must cover site-specific hazards and the safe management of these hazards. The HIRA document must be signed by the abovementioned representatives and be approved by the Employer's Representative, before any construction work can commence.

- 6.3.4 Substance abuse

The OHS Act (Act 85 of 1993) clearly states in the Safety Regulations no. 2A "INTOXICATION" An employer or user, as the case may be, shall not permit any person who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace". Transnet Capital

Projects enforces this legislation by means of its Substance Abuse Policy, and therefore reserves the right to do substance abuse testing on anyone who enters their premises.

6.3.5 SHE meetings or Toolbox sessions

The Contractor shall ensure that a safety representative is appointed and regular safety meetings are held. Written minutes of these safety meetings shall be forwarded to the Employer's Representative. All costs related to the safety aspects required under this contract will be carried by the Contractor's and therefore be covered under the rates tendered.

NB: The tendered amount shall include for all costs to conform to the Health and Safety requirements.

6.4 Environmental constraints and management

6.4.1 The Contractor shall provide a Contractor's Environmental Management Plan addressing all the potential impacts of his activities. The Employer's Representative has the right to request additional specific work method statements should in his opinion this be required.

Progressive and systematic finishing and tidying-up will form an essential part of this contract. Under no circumstances shall spoil, rubble, materials, equipment or unfinished operations be allowed to accumulate unnecessarily.

No material shall be dumped on the Employer's property and no suitable material shall be disposed of if it is required elsewhere for the proper completion of the contract.

All discarded/spoiled/hazardous material shall be disposed of at an approved registered dumpsite and the Contractor shall furnish the Employer's Representative with receipts and official disposal certificates from the dumpsite.

The Contractor shall make good all damages to the environment to the satisfaction of the Employer's Representative Waste Management Objective.

Vehicle and Equipment Refuelling Objective

To eliminate / control fuel and oil spillage at refuelling facilities

Scope

The standard applies to all refuelling, lubrication and oil changing requirements on all vehicles and machinery.

Refuelling

Engine driven compressors, pumps, air conditioners, and arc welders can have small leaks (usually oil) that can accumulate to become spills, which require clean up. These leaks become more evident if the equipment remains in the same place for an extended period of time. Damaged fuel tanks, fuel hoses, and fuel pumps can be sources of significant fuel leaks. Hydraulic systems can blow gaskets or hoses resulting in large quantities of hydraulic fluid spilled to the ground and under lock and key arrangements.

Control

No vehicles or machines shall be serviced or refuelled on Site except at designated servicing or refuelling locations, no oil or lubricant changes shall be made except at designate locations, or in case of breakdown or emergency repair.

The *Contractor* shall store fuel and oil at a secure area, which shall be bunded and designed with a liner or paved surface to prevent spillage from entering the ground.

The *Contractor* shall provide details of its proposed fuel storage and fuelling facility to the EO for approval, the design shall comply with the regulations of the *Water Act* (Act 36 of 1998), the *Hazardous Substances Act* (Act 15 of 1973), and the *Environment Conservation Act* (Act 73 of 1989).

Spray Painting and Sandblasting

Objective

To ensure that all spray painting and sandblasting on Site is done in a controlled manner where appropriate measures are taken to prevent paint contamination of the soil and to ensure that sandblasting grit/media is properly disposed of.

Spray Painting and Sandblasting

Spray painting and sandblasting should be kept to a minimum. All painting should as far as practicable be done before Equipment and Material is brought on Site. Touch up painting is to be done by hand painting or by an approved procedure. A method statement shall be submitted to the SHEC for approval.

The *Contractor* will inform the EO of when and where spray painting or sandblasting is to be carried out prior to commencement of *work*. The EO will monitor these activities to ensure that adequate measures are taken to prevent contamination of the soil.

NB: If the area is in confined or high areas then a protection plan is to be issued for approval.

Dust Management

Objective

The *Contractor* (associated with activities such as earth *works*, geotechnical surveys, piling, storm water drainage, construction of roads and railways, foundations, brick building, operating workshops, fencing, erecting construction camps, and batch plant activities, etc.) shall submit a dust control plan for approval by the EO.

Scope

Control of dust on the construction Site

Dust Management

The Contractor shall appoint a responsible person to ensure that no incident shall occur on site that could cause dust pollution. Where the Contractor was negligent and caused any form of pollution, the damage shall be rectified at the Contractors cost.

NB: The tendered amount shall include for all costs to conform to the Environmental constraints and management requirements.

Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin to prevent dust.

Dust is to be controlled on unsurfaced access roads and Site roads using sprayed water. The *Contractor* is responsible for managing dust generated as a result of his activities. The CM will be responsible for the dust control of the Site and Working Areas.

- Implement a system of reporting excessive dust conditions by construction personnel

Rehabilitation

Objective

To ensure that all areas affected by the project are appropriately rehabilitated and re-vegetated in a manner congruent with the surrounding biophysical environment and to prevent the spread of alien invasive species.

Scope

All areas affected by the project including laydown areas.

Rehabilitation

The *Contractor* shall rehabilitate their laydown area upon Completion of work on Site. A rehabilitation plan will be submitted to the EO for approval at least six weeks before Completion. The following are critical issues to be included in the rehabilitation plan:

- Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use.
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified botanist should be sought in developing this list.
- Procedures for watering the planted areas (frequency of watering, methodology proposed).
- An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring the rehabilitation successful).
- Procedures for the prevention of the establishment and spread of alien invasive species.

Noise Management

Objective

To maintain construction noise at the Site within required limits.

Scope

Construction noise at the construction Site.

Noise Management

- Keep all Equipment in good working order
- Operate Equipment within its specification and capacity and don't overload machines
- Apply regular Maintenance, particularly with regards to lubrication
- Operate Equipment with appropriate noise abatement accessories, such as sound hoods

Noise control measures for incorporation by the *Contractor* in its noise control plan shall include the following:

- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, *SABS Code 0103:1983*, so that it will not produce excessive or undesirable noise when it is released.
- All of the *Contractors'* Equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, *SABS Code 0103:1983*, for construction plant noise generation.
- If on-site noise control is not effective, protect the victims of noise (e.g. ear-plugs) by ensuring that all noise-related occupational health provisions are met. (*Occupational Health and Safety Act* (Act 85 of 1993)).
- Normal machine working hours will be 07:00 – 17:00 Monday to Saturday. Outside these hours, machine operations will be subject to approval. This does not define shift hours.

Protection of heritage resources

Objective

To ensure the protection of archaeological, historical artefacts, or heritage resources discovered during construction activities.

Scope

Archaeological, historical artefacts or heritage resources discovered on or near the Site.

Archaeological Sites

If an artefact on Site is uncovered, work in the immediate vicinity shall be stopped immediately. The *Contractor* shall take reasonable precautions to prevent any person from removing or

damaging any such article and shall immediately upon discovery thereof inform the engineer of such discovery. The South African Heritage Resources Agency is to be contacted who will appoint an archaeological consultant. The *work* may only resume once clearance is given in writing by the archaeologist.

Discovery of an item of historical value or stopping the works would fall under compensation events 60.1(4) and/or (7), despite the manner in which the Works Information is written here.

Fire prevention

Objective

To minimise the risk of uncontrolled fires which could threaten damage to equipment and cause harm to any persons.

Scope

All activities on or near the Site that could initiate an uncontrolled fire.

The Contractor shall strictly comply to Transnet's hot works policies.

Fire control

Fires shall only be allowed in facilities or Equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office Sites. All conditions incorporated in the requirements of the Occupational Health and Safety Act shall also be implemented.

Extra care shall be taken and a Plan shall be submitted for any open flame welding that will take place.

6.5 Quality assurance requirements

- 6.5.1 The onus rests on the Contractor to produce work which will conform in quality and accuracy of detail to the requirements of the Specifications and Drawings, and the Contractor must, at his own expense, institute a quality control system and provide experienced technical staff together with all transport, instruments and equipment to ensure adequate supervision and positive control of the works at all times.
- 6.5.2 The Contractor shall submit his proposed Quality Control Procedures (QCP) to the Employer's Representative for approval. Site Access will not be permitted until the QCP is to the Employer's Representatives satisfaction.
- 6.5.3 Transnet will have the right to inspect the work at any time during the progress of the contract.
- 6.5.4 The *Contractor* shall have, maintain and demonstrate its use to the *Project Manager* the documented Quality Management System to be used in the performance of the *works*. The *Contractor's* Quality Management System shall conform to International Standard ISO 9001 (or an equivalent standard acceptable to the *Project Manager*).
- 6.5.5 The *Contractor* submits his Quality Management System documents to the *Project Manager* as part of his programme under ECC Clause 31.2 to include details of:
- Quality Plan for the contract;
 - Quality Policy
 - Index of Procedures to be used; and
 - A schedule of internal and external audits during the contract
 - Quality control steps
 - Inspections
 - Testing and performance criteria
- 6.5.6 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.

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

6.5.8 The Quality Plan means the *Contractor's* statement, which outlines strategy, methodology, resources allocation, QA and Quality Control co-ordination activities to ensure that the *works* meet the standards stated in the *Works Information*.

The onus rests on the Contractor to produce work which will conform in quality and accuracy of detail to the requirements of the Specifications and Drawings, and the Contractor must, at his own expense, institute a quality control system and provide experienced technical staff together with all transport, instruments and equipment to ensure adequate supervision and positive control of the works at all times.

6.5.9 The Contractor shall submit his proposed Quality Control Procedures (QCP) to the Employer's Representative for approval. Site Access will not be permitted until the QCP is to the Employer's Representatives satisfaction

Transnet will have the right to inspect the work at any time during the progress of the contract.

6.6 Programming constraints

6.6.1 The Contractor shall produce a detailed programme of intent setting out the sequence of the construction time periods for the installation and completion of each section of the work. Such programme is to be completed in such a manner as to enable its use for monitoring of progress and compilation of forecasts for payment certificates.

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

6.6.3 Within two weeks of the award of this contract, the Contractor will be required to submit to the Employer's Representative a detailed Provisional Programme.

6.6.4 The *Contractor* shows on his Accepted Programme and all subsequently revised programmes schedules showing the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.

6.6.5 The *Contractor's* programme shows duration of operations in working days [please state here or by cross-reference elsewhere in C3.1 *Employer's Works Information* to normal hours of a working days and what is a normal working week].

6.6.6 Progress Reporting

To demonstrate the actual progress of the work under the Contract the Contractor shall, on a weekly basis, update and submit to the Employer's Representative;

The revised program, in the form of a three week look-ahead, that shall show two (2) separate bars for each activity as per i) and ii) below so as to enable a comparison of the actual progress with the first program;

- The first programme activity bar,
- The revised activity bar identifying the currently forecast start and finish dates of the activity, and the status (% complete of each activity),
- The progress 'S curves' based on the latest Approved Programme, and
- Deviations of the "current" activity schedule from the "baseline" activity schedule together with the 'S Curves' will form the basis for assessing progress and performance.

6.6.7 Progress monitoring and review

Monitoring and review of the progress of work under the Contract shall consist of an assessment of all activities currently in progress. The following shall be determined:

- percentage complete;
- forecast completion date;

- S-curves showing actual versus baseline figures;
- deviations from the Accepted Programme; and
- Actions required remedying any deviations.

Fortnightly progress reviews shall be conducted to assist control of the work under the Contract. The Contractor shall provide this information upon request from the Employer's Representative; however any identified deviations shall be automatically reported to the Employer's Representative.

6.6.8 Important aspects to be seen in the programme, and not limited to, are listed below:

- Establishment on site,
- Setting out,
- Installation sequence for various buildings,
- Installation of individual interior units,
- Installation of external units,
- Building work,
- Commissioning, according to the relevant SANS Codes and the Occupational health and Safety Act (Latest Editions apply)
- Cleaning and painting,
- Works Completion handover.

6.6.9 **Statement of installation – Method statement**

The contractor is to submit at tender stage, a method statement clearly detailing how the different stages of work will be carried out including but not limited to:

- The installation and fixing of the internal units
- Installation and fixing of the external units
- Installation of piping
- Structural work required for the satisfactory installation of the equipment.
- Extent of the Builders Work with reference to making good damage to walls and floors.
- Core drilling if required
- Flow of material through the buildings and office areas.
- Storage and accommodation if required
- Erection of scaffolding

6.7 Contractor's management, supervision and key people

6.7.1 The Contractor shall provide an organogram showing his key people and their lines of authority, reporting and communication.

6.8 Insurance provided by the Employer

6.8.1 Insurance provided by the *Employer* is contained in the Contract Data – Part 1.

6.9 Contract change management

6.9.1 No additional requirements apply to ECC Clause 60 series.

6.10 Provision of bonds and guarantees

- 6.10.1 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.
- 6.10.2 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 ECC contract.

7 Procurement

7.1 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:

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

This code of conduct has been included in this contract to formally appraise Transnet Suppliers of Transnet's expectations regarding the behaviour and conduct of its Suppliers.

Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices

Transnet is in the process of transforming itself into a self-sustaining State Owned Enterprise, actively competing in the logistics industry. Our aim is to become a world class, profitable, logistics organisation. As such, our transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.

1. *Transnet will not participate in corrupt practices and therefore expects its suppliers to act in a similar manner.*
 - Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with and payments to our suppliers.
 - Employees must not accept or request money or anything of value, directly or indirectly, to:
 - Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;
 - Win or retain business or to influence any act or decision of any decision stakeholders involved in sourcing decisions; or
 - Gain an improper advantage.
 - There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our "Tip-offs Anonymous" Hot line to report these acts. (0800 003 056).
2. *Transnet is firmly committed to the ideas of free and competitive enterprise.*
 - Suppliers are expected to comply with all applicable laws and regulations regarding fair competition and antitrust.
 - Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing B-BBEE spend (fronting)
3. *Transnet's relationship with suppliers requires us to clearly define requirements, exchange information and share mutual benefits.*
 - Generally, Suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
 - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc.);

- Collusion;
 - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, B-BBEE status, etc.);
 - Corrupt activities listed above; and
 - Harassment, intimidation or other aggressive actions towards Transnet employees.
- Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted and the supplier is expected to participate in an honest and straight forward manner.
 - Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

Conflicts of Interest

1. *A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of Transnet.*
 - Doing business with family members
 - Having a financial interest in another company in our industry

7.2 The Contractor's Invoices

- 7.2.1 When the *Project Manager* certifies payment (see ECC Clause 51.1) following an assessment date, the *Contractor* complies with the *Employer's* procedure for invoice submission.
- 7.2.2 The invoice must correspond to the *Project Manager's* assessment of the amount due to the *Contractor* as stated in the payment certificate.
- 7.2.3 The invoice states the following:
 - Invoice addressed to Transnet SOC Ltd;
 - Transnet SOC Limited's VAT No: 4720103177;
 - Invoice number;
 - The *Contractor's* VAT Number; and
 - The Contract number.
 - The invoice contains the supporting detail.
- 7.2.4 The invoice is presented either by post or by hand delivery.
- 7.2.5 Invoices submitted by hand are presented to:
The Project Manager
Transnet National Ports Authority
TNPA House
South Arm Road
Port of Cape Town

For the attention of The Contract Administrator, Transnet National Ports Authority
- 7.2.6 The invoice is presented as an original.

7.3 Tests and inspections before delivery

- 7.3.1 The *Contractor* submits to the Supervisor details to certify that tests and inspections have been carried out on Plant and Materials.
- 7.3.2 For all equipment assembled and/or purchased outside of South Africa, the Contractor shall submit all proofs of testing and results and documentation of quality assurance.
- 7.3.3 The Contractor holds full responsibility of the quality of the equipment that arrives on site.

SECTION 3

C3.2 CONTRACTOR'S WORKS INFORMATION

The Contractor shall provide the following:

- Contractor's proposed design
- Plant and Materials specifications and schedule
- All design criteria as mentioned in section 2.2 and 2.5
- And any other specifications and designs that the contractor feel will be required for the project execution

All designs by the contractor to be approved by the Project Manager or Project Manager's representative.