SPECIFICATION FOR THE DESIGN, SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF A COMPLETE NEW SHOT BLAST BOOTH INCLUDING THE STRUCTURE FOR THE LOCOMOTIVE BUSINESS IN DURBAN.

TRANSNET ENGINEERING, 311 SOLOMON MAHLANGU DRIVE, ROSSBURGH.

REFERENCE: FAI_DBN_SPEC_130

Date of release: OCTOBER 2024

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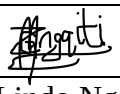
Signature	 21.01.2025
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1. INTRODUCTION / SCOPE of Work

This specification is for the:

#	TASK	REQUIRED
1	Design	✓
2	Manufacture	✓
3	Supply	✓
4	Installation	✓
5	Documentation	✓
6	Testing, calibration	✓
7	Training	✓
8	Commissioning	✓

Of the specified:

#	ITEM	REQUIRED
a.	New galvanised steel structured shot blast booth for the locomotive business.	✓
b.	Floor scraper recovery system.	✓
c.	Structure over the booth.	✓
d.	Appropriately sized oil screw compressor.	✓
e.	Appropriately sized vertical air receiver complying to Transnet specifications.	✓
f.	Spare scrapper system to cover half the booth.	✓
g.	Set of railway lines linking the shot blast booth to Traverser.	✓

which must be commissioned in the Area next the existing Locomotive shot blast booth. Once commissioned it shall operate safely for its design life of 30 years.

SCOPE OF WORK

1.1 The specification is for the: Design including the steel structure covered in IBR sheeting on the sides.

1.2 Design of complete shot blast with power supply, install, test and commissioning of the new spray booth complete will all specified equipment and to ensure compliance with all applicable Municipal By-laws, Health, Safety and Environmental Laws and Regulations.

1.3 The shot blast booth shall be built next to the existing shot blast booth, in 311 Solomon Mahlangu Drive, Durban.

1.4 Train/arrange a training for 10 operators and maintenance team.

2. SITE INSPECTION

2.1 All prospective contractors shall be required to undertake a compulsory site inspection to fully acquaint themselves with all aspects involved.

2.2 Arrangements to visit the site and confirmation of the date and time of the site inspection shall be made with Transnet Engineering Contract Manager.

Signature of Bidder/s: _____ Date: _____

2.3 The site inspection certificate shall be completed and countersigned by the Contract Manager on the day of the visit and must be submitted with the tender documents.

3. INFORMATION REQUIRED

3.1 Offers will not be considered unless full particulars and sufficient literature are provided at the tendering stage to enable Transnet Engineering Technical Officers the opportunity to assess each technical offer properly.

3.2 Prospective Contractors will complete the relevant questionnaire in full and must indicate whether their offer complies with each item of the specification

3.3 Should there be insufficient space for furnishing full details; contractors shall provide the additional details in their covering letter. The additional details shall be numbered in accordance with the applicable clause specified in the specification.

3.4 As prospective contractors are considered to be experts in their field, they are obliged to identify any shortcomings, such as omissions or sub-standard requirements, to the completeness of this specification. These must be brought to the attention of Transnet Engineering at tender stage with alternatives to address these shortcomings. However, each offer shall be quoted for separately.

4. TECHNICAL REQUIREMENTS

The following regulations and codes must be complied with:-

4.1 Except where otherwise provided for in the specification, all equipment offered will comply with the requirements of the relevant standard specifications of the SABS, if published, otherwise with the relevant standard of the British Standards Institution in force at the time of tendering.

4.2 Where equipment offered complies with the recognized standards of the country of manufacture and not specifically with the standards required by this specification, such equipment will be considered at the discretion of Management. In this case, tenders shall state fully all respects in which the equipment departs from the standard laid down in this specification.

4.3 The successful tender will at the conclusion of the installation provide a document along the lines "that the installation complies with national/international requirements and that all selected /designed items are compliant with Act 85 of 1993 and SABS practices applicable to the installation. The equipment has been commissioned/ calibrated and employees as specified have been trained and found competent to operate the plant."

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The work shall be done in accordance to the following Legislations, Regulations and Standards:

- **SABS 1253: 2003 Fire doors and fire shutters.**
- **SANS 10108 (SABS 0108): The classification of hazardous locations and the selection of apparatus for use in such locations.**
- **SANS 193: Fire dampers.**
- **SANS 10400 : National Building Regulations Part W: Fire installation.**
- **SANS 10252 : Water supply and drainage for buildings .**
- **SABS 0287: Automatic sprinkler installations for fire-fighting purposes.**
- **Bylaws relating to Fire Brigade Services adopted by any local government body dissolved or disestablished by Proclamation LG123 of 1995 published in Official Gazette No 5044 dated 31 May 1995.**
- **Bylaws relating to Fire Prevention and Flammable Liquids and Substances (as amended) of the former City Council of the City of Durban published in Official Gazette No 4532 dated 29 May 1986.**
- **SANS 10142-1 The wiring of premises Part 1: Low-voltage installations.**
- **SANS 60529:2001/IEC 60529:2001, IDT, Ed. 2.1 Degrees of protection provided by enclosures (IP Code).**
- **SANS 60614-1:1994/IEC 60614-1:1994, IDT, Ed. 2 Conduits for electrical installations – Specification Part 1: General requirements.**
- **SANS 61084-2-2:2003/IEC 61084-2-2:2003, IDT, Ed.1 Cable trunking and ducting systems for electrical installations Part 2-2: Particular requirements - Cable trunking systems and cable ducting systems intended for underfloor and flush floor installations.**
- **SANS 1507-2:2007 Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3 300 V) Part 2: Wiring cables.**
- **Occupational Health and Safety Act and Regulations 85 of 1993.**
- **Occupational Health & Safety Act, and the General Safety Regulations; According to the Ethekwini LM (Environmental Health Dept.).**
- **National Environmental Management Act, No. 107 of 1998.**
- **National Environment Management: Waste Management Act, No. 59 of 2008.**
- **National Environment Management: Air Quality Act, No. 39 of 2004.**
- **Water Services Act, No. 108 of 1997.**
- **SANS 10086-1: 2011: The installation of electrical equipment in an explosive atmosphere (Zone 1).**

5. SPECIFIC REQUIREMENTS

Any person with the intention of procuring the shot blast booth, equipment, including the structure shall ensure that the information below is complied with.

5.1 Loads and Duty Cycles

- The shot blast booth shall accommodate 23 meter long locomotives.
- The shot blast booth shall effectively and efficiently for the full design life of 30 years.

Signature of Bidder/s: _____ Date: _____

5.2 Operational Parameters

- The service provider to design the effective shot recovery system.
- The shot blast booth shall be designed for use with 4 blast pots and 10 mm nozzles simultaneously.

5.3 Environment

- Enclosure with dust.

5.4 Operating Environment

- Enclosed environment.

5.5 Design

No.	REQUIREMENTS
	Shot blast booth.
5.5.1	The booth shall cater for the shot blast of new build Locomotives and any other rolling stock.
5.5.2	The shot blast booth shall be housed inside a structural hot dip galvanised steel structure with: Widedek (SAF 760) IBR sides and roof. The IBR sheeting shall have a minimum coat thickness of 130g/mm² as required by ISO 9364:2001 for a coating designation of AZ150 similar to Zincalume. Strong blue colour.
5.5.3	The Shot blast booth shall have the following minimum inside dimensions: • Length 30 m • Height 6.6 m • Width 7 m
5.5.4	**The shot blast to consist of the following:** • Foundations for blasting equipment including the scrapper. • Steel structure. • Full floor scraper system split in half and driven on each ends • Bucket elevator system capable of recovering shot from all four blast pots. • Separator and storage hoppers. • Blast pots. • Full dust extracting, ducts and filters. • Full length elevating platforms, designed and installed by a competent person/organisation and shall be tested by a registered LMI employed by a LME on both long sides. • LMI to produce a certified copy of renewal with ECSA and scope of work and a copy of identity document. • Doors with limit switches linked to the control system of the shot blast, to prevent blasting with the door open. • Air Supply linked to the main plant air system with an isolating valve. • Appropriately sized vertical air receiver matching the attached specification. • Appropriately sized oil screw compressor capable of maintaining pressure to supply 4 blast ports with 4 pipes (with 10mm nozzles) simultaneously. The compressor shall have a VSD. • Air filter system for shot blast helmets. • Control panel. • Lighting with a minimum of 300 lux intensity both inside the booth and outside the

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
	booth. • Signage.
5.5.5	**Foundations:** • The bidder shall be responsible for the foundations for the equipment. • The design of the foundations must be done by a professional engineer. • The bidder shall supply Transnet Engineering with drawings, which have all the necessary approvals from the relevant engineers. (Engineers to be registered at ECSA.) • Full details to be provided. • All calculations and design drawings must be made available to Transnet Engineering for approval before commencing with the project.
5.5.6	**Fabricated Steel Structure:** • Not less than 3mm thick folded and stiffed mild steel insulated panels and suitably supported with substantial rolled steel joints and channels bolted together to provide a rigid structure • The roof structure shall be designed to provide suitably supported cross bearers to ensure no sagging of the roof. The roof structure must allow for maintenance personnel to work on the roof. • The Bidder shall supply Transnet Engineering with drawings, which have obtained all the necessary approvals from the relevant design engineers (registered as a professional engineer with ECSA). • Full details to be provided. • The Bidder to indicate the means of how the structure is being fixed to the floor. Full details to be supplied. • The joints of the structure shall be sealed with an appropriate sealant/s during erection.
5.5.7	**Floor and rails:** • The floor shall be manufactured from heavy duty steel grating. Grating to carry the load of the tractor used for shunting ±5000kg. • Grating shall rest on the base unit that will be the primary recovery area. • Fine mesh shall be fitted on top of the grating to prevent large parts like bolts from falling into the scrappers. • Grating shall not exceed dimensions of 1 x 1.5 metres each. • Grating shall have 4 lifting points each for maintenance purposes. • A safe grating lifting mechanical system shall be installed for maintenance purposes and such system shall be independent and certified as lifting equipment. • Rails to be installed inside the booth and fitted with buffers at the one end. Rails shall be the gauge, strength and design to suit all rolling stock. • Grating shall be flat at all times to prevent trips and falling. • Full details to be provided.
5.5.8	**Floor scraper system:** • Install a full floor scraper system in the primary recovery area. • The floor scraper shall be designed to recover the shot (SH 50 grit) used with four shot blast nozzles. No 10 nozzles to be used.

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
	• Full details to be provided for the scraper system. • Scraper system shall be split into 2 differently and Individually driven system half the booth length. • Scrapper blades shall be easily removed and adjusted for maintenance purposes.
5.5.9	**Bucket elevator:** • A bucket elevator shall be designed and installed for the recovery of shot from floor scrapper to the separator and hoppers. • Extraction to be installed on the elevator system to remove dust and any debris. • Full details to be provided.
5.5.10	**Separator/Storage hopper:** • Extraction to be installed in/on the separator to remove dust and debris, so that only clean shot is fed into the storage hopper. The extraction shall deliver dust to the outside of the booth. • Storage hoppers to be installed for the collection of the shot. • Storage hopper to be fitted with shut off /closing plates for selection to the different blast pots. • The extraction system for bucket elevator and separator/storage hoppers to be separate from the main extraction system. • Full details to be provided.
5.5.11	**Blast Pots:** • Supply and install 4 x 200 litre blast pots compliant to the Pressure Equipment Regulations of Act 85 & SANS 347:2012, Edition 2 for the shot blast booth. • Blast pots to be supplied as complete units with shot blast hoses and shot blast nozzles. • Shot blast hoses shall be 2 x 30 meters and 2 x 20 meters. • Full details to be provided. • Pre-commissioning inspection and hydraulic pressure tests shall be carried out on site by an Approved Inspection Authority recognised by Transnet and certification handed over to Transnet as part of the commissioning.
5.5.12	**Main dust extraction system for booth:** • Main extraction system to be installed for the blast booth. • The system to be fitted with inlet filters, ducting system and catchment filter system. • The ventilation / extraction system for the blast booth shall be a cross draft ventilation system. • Airflow shall be evenly distributed across the cross section and length of the blast booth. • The extraction and cross flow shall comply with the OHS Act 85 of 1993. • No dust/debris to be extracted/blown into the atmosphere. Filter system to be installed. • Full details to be provided.
5.5.13	**Full length lifting platforms:** • Install and fit full length lifting platforms over the entire length on both sides of the blast booth. • Lifting platforms to be 1 200mm wide. • Lifting platforms SWL to be 500kg.

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
	• Supply movable platforms for each end of the shot blast booth. (SWL 500kg) • Full details to be provided.
5.5.14	**Doors:** • Install and supply double hinged doors on both sides of the blast booth. • Hinged doors to be 4.5m high and 4m wide. • Doors to open to the outside. • Hinged doors to be fitted with glass inspection windows covered with moveable steel protection. • Supply and install 2 man size steel entrance doors with glass inspection windows covered with moveable steel protection on the control panel side.
5.5.15	**Air Supply:** • The air supply for the booth to be connected on the current air supply. • Available air pressure is 600-650 kPa. • Air receiver to be supplied. Min 0.8m³. • Air receiver to be fitted with gages, water traps, safety valves. • Shut off valves (2) shall be fitted on air receiver. • Air receiver to be supplied with test certificates. • Air receiver to be fitted with maker's plate. • Air receiver to comply with attached Transnet requirements. • Supply and install 1000 litre vertical air receiver compliant to the Pressure Equipment Regulations of Act 85 & SANS 347:2012, Edition 2 for the shot blast booth. • Pre-commissioning inspection and hydraulic pressure tests shall be carried out on site by an Approved Inspection Authority recognised by Transnet and certification handed over to Transnet as part of the commissioning.
5.5.16	**Fresh air system:** • Supply and fit a fresh air supply system with filters for the shot blast helmets. • System to be connected on the existing air supply available at 600-650 kPa. • Full details to be provided for the system.
5.5.17	**Electrical control panel:** • Supply and install one control panel for all electrical equipment used on the shot blast. • All drawings to be submitted for approval by Transnet Engineering. • Control panel to be supplied from a fixed lockable fused isolator. • Have solenoid controlled air valves for each pot and such shall be electrically connected in series with the control circuit of the scrapper system. • Supply and install the start-up proses on the front outside of the control panel. (SOP) • Supply and install all identification labels and lights. • Control panel drawings to indicate all equipment used for operation of the blast booth. • All wire sizes to be indicated on the drawings. • All equipment used to be overload/short circuit protected. • All wiring and cables to be labelled according to the drawings.
5.5.18	**Lighting:** • The booth to be provided with sufficient lighting. Lighting shall be 300 lux inside the booth.

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
	• Lights to be protected and be installed in such a way that it could be repaired or replaced from the outside. • Fluorescent lighting to be used and shall be of the energy sufficient type. • Fluorescent light fittings to be supplied from 6 Amp non-switchable socket outlets. • Only one light fitting to be supplied from a socket outlet point. • Pick tails from the socket outlet to the light fitting not to exceed 1 meter. • Fluorescent light circuit to be switched at the control panel. • Warning lights/strobe lights shall be installed at all entrance doors to the blast. Lights to be flashing when the plant is in operation. • Warning lights shall switch on automatically when the plant is start up and in operation.
5.5.19	**Signage:** • All signage to be fitted at all entrance doors. • Signage to indicate PPE required when operating the blast booth.
5.5.20	**Electrical installation:** The supplier to indicate the minimum power required to operate the plant fully. The bidder shall be responsible for the supply cable, overload protected circuit breaker from the distribution board/mini substation to the lockable fused isolator. All electrical installations shall comply with the SANS 10142 Part 1 of 2012, edition 1.8 and Transnet Engineering general electrical requirements. Transnet Engineering requirements attached.
5.5.21	Full details regarding the shot blast to be given at tender stage.
5.5.22	The successful bidder shall supply the following documents in 1 set of PDF files in a USB memory stick and 3 sets of hard copies. • Operation Manual, Maintenance Manual, Trouble shooting guide and solutions. • Parts list, Parts numbers, Critical Spares List • Electrical drawings with all electrical components, • Mechanical drawings with all mechanical components. • Design package including design calculations. • A full data pack shall be submitted to Transnet Engineering on completion. • Electrical certificate of compliance, issued by the trade tested electrician with wireman's licence and a valid registration letter recognising them as a Master Installation Electrician, from the department of labour. • Performance Test certificate. • Certificates of calibration. • Operator and Maintenance staff training for 10 Transnet Engineering staff members. All required software (Soft copies), including PLC.

Signature of Bidder/s: _____ Date: _____

5.5.23 The supplier shall ensure that the required equipment comply with the following specification for sand/shot blasting pots and new Transnet specification for vertical air receivers.

No.	REQUIREMENTS
5.5.23.1	**TRANSNET SPECIFICATION FOR SAND/SHOT BLASTING POTS** The design of the sand/shot pot must be carried out by the manufacturer in accordance with the Pressure Equipment Regulation under section 43 of the Occupational and Safety Act, 1993 (Act no.85 of 1993). The sand/shot blast pot must be certified by an Government Approved Inspection Authority. On completion a Data Book (certificate of manufacture, test, compliance, drawing, material identification, welders qualification, etc) must be issued for the sand/shot blast pot. The sand/shot blast pot must be categorized as per requirements of SANS 347. The marking on the data nameplate must meet the requirements of Pressure Equipment Regulation 9. **CONTACT DETAILS OF TRANSNET APPROVED PRESSURE VESSEL MANUFACTURERS IN SA:** Sand/Shot blast pots must be manufactured by Pressure Tank Fabricators (Tel: 0119184124 / 2793/0162) or ARLEC Engineering Works (Tel: 011835-3111/4) or ILVA General Engineering (Tel: 011609-3000/1). **THE FOLLOWING CODES OF CONSTRUCTION WILL BE APPLICABLE:** As per Annexure A of SANS 347:2012, Edition 2 (examples: ASME 8 DIV. 1, RSA/CIF/OHSA-AA-BB, PD 5500). **DESIGN DATA**: Design Pressure: 1000 kPa. Working/Operating Pressure: 690 kPa. Vessel Thickness – 6 - 8mm. Design Temperature: as per code. Corrosion Allowance: 1mm. Volume: 0.2 m^3 (200 litre). Sockets: ASTM A 105 3000# Socket thickness on vessels – 5mm (e.g. where gauge/safety valves are to be fitted).

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
5.5.23.2	**Material of Construction: Boiler Plate.** **INSPECTION OPENING:** Oval Hand Hole Inspection Cover on vessel (200mm x 250mm) (thickness 6 - 8mm). **SAFETY VALVE & PRESSURE GAUGE:** Sand/shot blast pot must have Compensation Pads/Doubling Plates at Support Legs, around Inspection Holes. Sand/shot blast pot must be fitted with safety valve and pressure gauge, filter in-between safety valve and pressure gauge, covers over pressure gauge and safety valve for protection. Safety valve test certificate to be given with the delivery of sand/shot blast pot and must be sealed or locked. Pressure Gauge calibration certificate to be given with the delivery of sand/shot blast pot and pressure gauge must be in kilopascals (kPa), with red line on dial showing working pressure. Lifting lugs to be welded on Top End of shell/barrel externally (2off). Corrosion Protection: Hot dip galvanized or Paint. If new sand/shot blast pot bought do not comply with above specs, it will not be permitted in Transnet to be used. For further information please contact me: Omesh Beeharie Specialist - Pressurised Equipment Technical Compliance Head Office Tel: 031 3615200 Cell: 083 286 4294 Email: Omesh.Beeharie@transnet.net

Signature of Bidder/s: _____ Date: _____

	TRANSNET SPECIFICATION FOR VERTICAL AIR RECEIVERS The design of the air receiver must be carried out by the manufacturer in accordance with the Pressure Equipment Regulation under section 43 of the Occupational and Safety Act, 1993 (Act no.85 of 1993) and SANS 347:2012, Edition 2.
5.5.23.3	The air receiver must be certified by a Government Approved Inspection Authority. On completion a Data Book (certificate of manufacture, test, compliance, drawing, material identification, welders qualification, etc) must be issued for the air receiver. The air receiver must be categorized to figure 2 in SANS 347:2012, Edition 2. The marking on the data nameplate must meet the requirements of Pressure Equipment Regulation, Regulation 9 – Pressure Equipment Marking.
5.5.23.4	**CONTACT DETAILS OF TRANSNET APPROVED PRESSURE VESSEL MANUFACTURERS IN SA:** Air Receivers/Pressure Vessels must be manufactured by Pressure Tank Fabricators (Tel: 0119184124/2793/0162) or ARLEC Engineering Works (Tel: 011835-3111/4) or ILVA General Engineering (Tel: 011609-3000/1).
5.5.23.5	**HEALTH AND SAFETY STANDARDS/CODES OF CONSTRUCTION:** As per Annexure A of SANS 347:2012, Edition 2 (examples: ASME 8 DIV. 1, RSA/CIF/OHSA-AA-BB, PD 5500, EN 286 -1)
5.5.23.6	**DESIGN DATA:** Design Pressure: 1000 kPa. Working/Operating Pressure: 690 kPa. Vessel Thickness: 6 - 8mm. Design Temperature: as per health and safety standard/code of construction. Corrosion Allowance: 1mm. Volume: 1.0 m^3 (1000 litre). Sockets: ASTM A 105 3000#. Socket thickness on vessels – 5mm (eg. where gauge/safety valves are to be fitted). Safety valve socket position must be on Top End of the vessel externally. Corrosion Protection: Hot dip galvanized or Paint. Material of Construction: Boiler Plate. Lifting Lugs: 2 on the top dished end to be fitted with doubling plates. Air receiver must have Compensation Pads/Doubling Plates at Support Legs, around Inspection Hole.

Signature of Bidder/s: _____ Date: _____

No.	REQUIREMENTS
5.5.23.7	**INSPECTION OPENING:** Air receivers from 500 to 1000 litres or 750 mm in diameter must have 2 off 130mm x 190mm (thickness 6 - 8mm) oval hand holes 180deg. apart (1 on top and the other at the bottom). **SAFETY VALVE & PRESSURE GAUGE:** Air receivers must be fitted with a safety valve and pressure gauge. Safety valve test certificate to be given with the delivery of air receiver and must be sealed or locked. Pressure Gauge calibration certificate to be given with the delivery of air receiver and pressure gauge must be in kilopascals (kPa), with red line on dial showing working pressure. **If new air receivers bought do not comply with above specs, it will not be permitted in Transnet to be used** For further information please contact me: Omesh Beeharie Specialist - Pressurised Equipment Technical Compliance Head Office Tel: 031 3615200 Cell: 083 286 4294 Email: Omesh.Beeharie@transnet.net
5.5.23.8	**If new air receivers bought do not comply with above specs, it will not be permitted in Transnet to be used** For further information please contact me: Omesh Beeharie Specialist - Pressurised Equipment Technical Compliance Head Office Tel: 031 3615200 Cell: 083 286 4294 Email: Omesh.Beeharie@transnet.net

5.6 Special Requirements

- none

5.7 Quality Controls and Monitoring

- All machinery/equipment shall come equipped with panel profile or analog time/hour meter counting running time of the machine. The hour meter shall be manipulation proof, Records time 0 to 99,999.9 hours with minimum accuracy of ±0.02 %.

Signature of Bidder/s: _____ Date: _____

- The Hour meter shall be of Polycarbonate, shock resistant, with tamper-proof case, totally sealed, single phase with synchronous, permanently lubricated motor design.
- This must also include backup and emergency systems.

5.8 Markings

- Safety, operation, technical data, dates of manufacture, manufacturer's details etc. markings shall be displayed and be visible on the equipment.

5.9 Safety Features

- The minimum safety features shall be according to statutory and industry rules.

5.10 Protective Finishes

- The booth shall be steel structure provided the steel profile is sturdy, have rubber lined sides to prevent wall degradation.

5.11 Services

- The service provider to state the services, such as water and power required for the blast booth.

5.12 Installation

- The blast booth shall be installed at Transnet Engineering, 311 Solomon Mahlangu Drive, Rossburgh.

5.13 Testing

- Compliance inspections and tests shall be completed by a registered person in respect of an electrical installation or part of an electrical installation and a certificate of compliance with a unique number obtainable from the chief inspector, or a person appointed by the chief inspector in the form of annexure 1.
- The Chief Fire Officer or representative (on behalf of the Municipality) shall be invited by the service provider to inspect and test fire equipment.

5.14 Commissioning

- **A testing period of 1 month (744 hours for 24/7 shifts and 248 hours for 8 hour shifts) this shall depend on what shift the business requiring this works. Confirmation shall be given on site visits and minutes captured.**
- **No machinery will be accepted by Transnet without the satisfaction of the conditions above.**

5.15 Maintenance

- The maintenance contract shall be for 5 years. The tenderers shall include the maintenance contract. The quote for maintenance plan shall be added on the Schedule of prices.
- The blast booth and equipment (hardware and software will be maintained by the tenderer for the first 5 years at no cost to Transnet Engineering.

5.16 Spares

- The tenderers to indicate the spares considered to be critical for the successful operation of the equipment, the availability and required lead times.

Signature of Bidder/s: _____ Date: _____

5.17 Warranty

- **The warranty shall be 5 years.**
- **A maintenance contract for the warranty period shall be included in the quoted price and shall involve Transnet employees to learn.**
- Specify when the system becomes fully operational and when the warranty period takes effect.
- **A penalty of R1000.00/hour will be applicable for every hour after 12 hours have elapsed, if the contractor is not on site to conduct repairs.**

5.18 After-Sales Service

- The successful tenderer shall provide Transnet Engineering with acceptable proof that spares can be easily and speedily procured for the equipment within 7 working days through agents locally.
- The contractor must be available to conduct repairs within 12 hours after verification of fault.

Note: All work to be completed in each respect by suitably qualified person.

6. GENERAL

6.1 The successful tenderer will be subjected to a workshop inspection by Transnet Engineering, to ensure that the facilities are to the satisfaction of the Transnet Engineering in terms of the quality control and equipment capabilities for manufacturing such type of equipment.

6.2 The tenderers shall guarantee that the rating and size etc. of the equipment offered, will be adequate to perform the duties required.

7. OTHER INFORMATION RELATED TO THE SCOPE

7.1 This specification states the minimum requirements relating to the work and in no way absolves the contractor from responsibility for sound engineering practice. Any omissions or sub-standard requirements of this specification must be brought to the attention of Transnet Engineering at tender stage and optional prices for addressing such omissions must be provided.

7.2 Any matter relating to this work, which requires a decision from Transnet Engineering shall be presented to the Project Manager in charge.

7.3 All offers shall be completed in every respect with this specification. Only completed tenders shall be considered.

7.4 The Technical Officer reserves the right to have the proposal checked independently by a third party.

7.5 Tenders must allow for monthly progress and clarification meetings on site initially and after commissioning for defect meetings when required. A meeting will be held after issuing of the tender to establish the exact scope and magnitude of the contract. No tender will be considered unless it has this certificate signed by the Engineer or his representative.

Signature of Bidder/s: _____ Date: _____

8. HEALTH AND SAFETY REQUIREMENTS

8.1 All equipment and installation whether detailed in this specification or not shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 as amended by applicable local authorities. All equipment shall be designed to **fail to safety**.

8.2 Sudden power losses must not have an adverse effect on equipment and shall not unduly delay return to operation after power is restored.

8.3 All the necessary safety equipment such as guards over rotating equipment shall be supplied and the equipment shall comply fully with all the requirements of the South African Occupational Health and Safety Act, Act 85 of 1993. At all times during the manufacture, assembly and testing of the equipment the contractor will be responsible for the safety of all persons on site and the equipment.

8.4 **Safety Induction**:

Prior to establishing on site, it is an explicit requirement of this contract that all of the Contractor's personnel directly involved with this contract, including those of sub-contractors, attend a **Safety induction course**. Transnet will provide the course free of charge and attendance is compulsory for all personnel under the control of the Contractor who, during the duration of the contract, will be present on site whether on a full time or adhoc basis.
The contractor must allow for all additional charges because of these requirements as no claims for extras whatsoever will be entertained in connection with the foregoing.

8.5 **Risk Assessment**:

The successful contractor is required to conduct a Risk assessment to ascertain all potential risks associated with this project. The completed risk assessment is to be formally submitted to the Risk department via the project manager at least two weeks prior to the commencement of the actual project. A safety file and associated documents will be required from a successful tenderer and such will be communicated by the risk Department. The successful contractor shall comply with Transnet Engineering SHE specification.

9. SPECIALIST SUB-CONTRACTORS

9.1 Only specialist sub-contractors who have previously successfully completed electrical and mechanical work of the type and extent specified in this document should be engaged. The tenderer shall provide the technical officer

With sufficient proof of having suitable experience regarding the design and manufacturing of similar equipment. To this end, complete and detailed reference list shall be submitted with the tender. Reference list shall include addresses as well as contact person who may be visited for inspection of the equipment during the adjudication period.

9.2 The tender shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.

9.3 The tenderer shall be prepared to commit themselves in writing to the technical officer with an adequate, experienced and stable project team for the duration of the contract.

Signature of Bidder/s: _____ Date: _____

9.4 Transnet Engineering will not consider any Tenderer's offer that, in the sole opinion of Transnet Engineering, does not have adequate experience in the design and manufacture of such equipment

9.5 Contractors shall do the installation simultaneously with other contractors on-site busy with other work and shall plan work that it integrates with other work performed.

10. MATERIAL AND WORKMANSHIP

10.1 Machinery shall be offered complete in all respects, including all standard equipment normally offered by manufactures, all of which shall be specified in detail.

10.2 The equipment, as made and supplied, shall be complete in every respect, of modern design, using the most advanced proven technology extensively supported by reputable local companies, and be built to good engineering practices. Tenderers shall supply a list of all the main components (mechanical, electrical etc.) proposed as well as the addresses of local the support companies.

10.3 All parts and components shall be adequately protected against damage and corrosion during shipping, transport and storage.

11. GENERAL REQUIREMENTS

Operation will be in the following conditions:

Altitude	Sea level
Ambient temperature	0˚C to 45˚C
Relative humidity	50% to 100%
Atmosphere	Heavy saline

11.1 Tenderers shall indicate clause-by-clause either that they comply in every respect with the specific requirements, or if not, exactly how it differs.

12. DEFINITIONS AND ABBERVIATIONS

CLIENT	Transnet Engineering Durban –
TECHNICAL OFFICER	Project Manager, Transnet Engineering Durban
CONTRACTOR	Contractor appointed under this specification document
SABS	South African Bureau of Standards
BS	British Standard Specification
FEM	Federation of European Mechanical Handling Standard
ISO	International Organisation for Standardisation
PRODUCT	Complete shot blast facility including structure
TE	Transnet Engineering

13. SITE ESTABLISHMENT

13.1 The contractor shall be solely responsible for safety of his staff and for providing security to safeguard his works and material on site, until the work is completed.

Signature of Bidder/s: _____ Date: _____

13.2 The contractor shall be required to attend site meetings when convened by the Project Leader controlling the contract.

13.3 The contractor will be responsible for any damages caused by his staff to the building and civil works on site.

14. PENALTY CLAUSES

14.1 Due to the criticality of this project, penalties will be levied for late deliveries.

Signature of Bidder/s: _____ Date: _____