



SCOPE OF WORK FOR THE UPGRADE, SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF THREE EFFLUENT TREATMENT PLANT AT TRANSNET ENGINEERING.

LOCOMOTIVE MAINTENANCE DEPOT (ORE CORRIDOR)

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Document Authorities

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1. Background

Transnet Engineering has three Effluent Treatment Plant in the Ore Corridor, two in Saldanha and one in Sishen. The Effluent Treatment Plant at both locations is outdated and struggling to efficiently treat wastewater discharged from Locomotives Maintenance workshops. However, the plant in Sishen is currently non-operational, making the need for an upgrade even more urgent to restore its functionality.

Over time, the plant's components have deteriorated, leading to inconsistent treatment performance, frequent breakdowns, and challenges in meeting environmental discharge standards. The aging infrastructure is no longer capable of handling effluent treatment properly.

To restore the plant to full operational capacity, an upgrade or complete replacement of key components is necessary. The goal of this upgrade is to ensure compliance with environmental regulations, improve operational reliability, and future-proof the plant for growing industrial demands.

2. Scope of Work

The Scope of work applies to all three Effluent Treatment Plants.

2.1 Minimum Requirements

- Conduct a detailed site inspection to evaluate the current condition of the plant and its components.
- Identify key deficiencies in the existing system, including mechanical, electrical, and structural issues.

2.2 Mechanical, Electrical and Structural upgrades

- Replace and upgrade aging pumps, and filtration units with high-efficiency alternatives.
- Upgrade all electrical components that needs to be changed.
- Conduct structural modifications where necessary to accommodate new components and ensure plant durability.

2.3 Quality and Safety Compliance

- All works done must meet Transnet Engineering internal safety and quality standards to guarantee the integrity and reliability of the equipment.
- Compliance with applicable industry standards, including ISO, and SANS regulations, is mandatory to ensure that all processes meet the necessary safety and operational criteria.
- Ensure the upgraded plant adheres to national and local effluent discharge standards.

- Supply odor and noise control measures to minimize environmental impact.
- Conduct environmental impact assessments to confirm sustainability and compliance with regulations.

2.4 Performance Testing and Commissioning

- A certification proving safety, readiness for use, and compliance is needed before equipment can be put into service.
- Conduct thorough system testing to verify the performance and efficiency of the upgraded plant.

3. Site Inspection

- All prospective Tenderers must participate in a mandatory site inspection to become fully familiar with all relevant aspects.
- Arrangements for the site visit, including confirmation of the date and time, must be coordinated with the Transnet Engineering Project Manager.
- A site inspection certificate must be filled out and signed by the Project Manager on the day of the visit, and it must be submitted with the tender documents.

Location	Quantity of Effluent Treatment Plant
Saldanha Diesel Locomotive Workshop	1
Saldanha Electric Locomotive Workshop	1
Sishen Inservice Locomotive Workshop	1

4. Information Required

- Offers will not be evaluated unless complete information and adequate documentation are submitted during the tendering process, allowing Transnet Engineering's Technical Officers to thoroughly assess each technical proposal.
- Potential Tenderers must fully complete the relevant questionnaire and indicate whether their offer meets each specification item.
- If there isn't enough space to provide complete information, Tenderers should include the additional details in their cover letter, numbering them according to the corresponding clause in the specification.

- As prospective Tenderers are considered experts in their respective fields, they must identify any deficiencies, such as missing elements or inadequate requirements, in the specification. These issues should be communicated to Transnet Engineering during the tender stage, along with suggested alternatives. Each proposal must be priced separately.

5. Regulatory Requirements

5.1 Compliance

- All equipment and work done must meet the relevant SANS standards, whether mentioned in this specification or not. If SANS standards are not available, compliance with British Standards is acceptable.
- International Standards (e.g., ISO 14001, WHO standards)
- Environmental Impact (e.g., air emissions, sludge handling, chemical disposal)

5.2 Occupational Health and Safety Act (OHSA)

- The following regulations and codes must be complied with: - at all times.
- Adherence to the Occupational Health and Safety Act, Act 85 of 1993, is mandatory. This includes ensuring a safe work environment and mitigating health risks.
- The contractor is responsible for the safety of everyone on the site and for the equipment at all times during installation.
- All tenderers must understand the installation environment. It is required that all personnel involved in this contract, including subcontractors, attend a safety induction course.
- The successful contractor must conduct a risk assessment to identify potential risks associated with the project. This assessment must be submitted to the risk department through the project manager at least two weeks before the project starts. A safety file and related documents will be required from the successful tenderer, as specified by the risk department.
- Contractor employees must always follow Transnet Engineering's security and safety procedures.
- Appropriate personal protective equipment (PPE) must always be used.

6. Specific Requirements

Contractors shall complete the following information by writing "Comply" where she/he meets the specification or give a brief description where his/her offer differs.

Item No:	Required	Comply Yes/No
6.1	Scope of Works:	
6.1.1	<p>Civil Works</p> <ul style="list-style-type: none"> • Repair and refurbish damaged pits and containment structures. • Replace or rehabilitate deteriorated piping and associated infrastructure. • Conduct necessary structural repairs to ensure integrity and longevity. <p>Mechanical Works</p> <ul style="list-style-type: none"> • Remove and replace pumps with new, high-efficiency models suitable for effluent treatment operations. • Clean and service filters to improve performance and extend lifespan. • Provide and install required spare parts for mechanical components. <p>Electrical and Control System Upgrades</p> <ul style="list-style-type: none"> • Replace outdated or faulty electrical switchgear and control systems. • Upgrade control panels and associated wiring to meet current standards. • Ensure all installations comply with regulatory and safety requirements. <p>Cleaning and Commissioning</p> <ul style="list-style-type: none"> • Empty and clean effluent pits to facilitate maintenance and repairs. • Conduct thorough testing and commissioning of all installed components to confirm functionality. • Provide operational verification and handover documentation. <p>Spare Parts and Consumables</p> <ul style="list-style-type: none"> • Supply a set of essential spare parts for pumps, filters, and electrical components to facilitate future maintenance. <p>Site Visit</p>	

	<ul style="list-style-type: none"> • A compulsory site visit will be scheduled for all bidders to inspect the existing conditions and obtain detailed specifications before finalizing bids. <p>Deliverables</p> <ul style="list-style-type: none"> • Completion of all specified repairs and replacements. • Testing and commissioning reports confirming proper functionality. • Supply of spare parts as listed in the final agreement. 	
6.2	Contractors Responsibilities:	
6.2.1	<ul style="list-style-type: none"> • Procuring all necessary materials and equipment required for the upgrade. • Ensuring all work complies with industry standards, safety regulations, and best practices. • Coordinating with relevant authorities for inspections and approvals. • Providing progress reports to Transnet Engineering project management team at agreed intervals. • Ensuring minimal disruption to ongoing operations during installation and testing phases. • Disposing of any waste materials generated during the upgrade in accordance with environmental regulations. • Submitting as-built drawings and technical documentation upon project completion. 	

7. Bill of quantities

Item No.	Description	Unit	Quantity	Rate (R)	Amount (R)
1. Civil Works					
1.1	Repair and refurbish damaged pits	m ²	150		
1.2	Replace/reinstate deteriorated piping	m	100		
1.3	Structural repairs to containment areas	m ²	100		
2. Mechanical Works					
2.1	Remove and replace defective pumps	Sum.	1		
2.2	Clean and service filters	Sum.	1		
2.3	Supply and install spare parts	Sum	1		
3. Electrical Works					
3.1	Replace electrical switchgear and control panels	Sum	1		
3.2	Upgrade control wiring	Sum	1		
4. Cleaning and Commissioning					
4.1	Empty and clean effluent pits	Sum	1		
4.2	Conduct system testing and commissioning	Sum	1		
5. Spare Parts					
5.1	Supply spare parts for pumps and filters	Sum	1		
Total Cost					