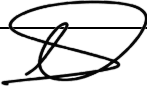




TE-IMS-PEMM-KLP-SPEC-009

Description: Boundary Wall and Shot Blast Pits Civil Repair for Transnet Engineering

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Location:	Transnet Engineering : Uitenhage Main Centre Depot , Swartkops Locomotive Depot			



1. Scope of Work

The Gqeberha and Kariega areas in the Eastern Cape has recently experienced severe adverse weather which has damaged civil structures at the following depots:

1. Uitenhage Main Centre:
 - Boundary Wall Collapse
 - Shot Blast Compromised Sealing Arrangement
2. Swartkops Locomotive Depot
 - Boundary Wall Collapse

This specification requirement covers all the requirements that will be needed to inform the supplier/vendor/manufacture/service provider to carry out what is expected from him/her:

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

2. Specific Requirements:

- Comply with the Occupational Health and Safety Act (Act85 of 1993), as amended.
- Adhere to the Construction Regulations of the Occupational Health and Safety Act (Act 85 of 1993), as amended.
- Comply with any Environmental Legislative requirements relating to the scope of work, namely National Environmental Management Act (NEMA), Act 107 of 1998.
- The contractor to have SHE INDUCTION and have valid permits when entering Transnet Engineering.
- The contractor to have a SHE FILE, SITE INSTRUCTION BOOK on site at all times.
- All measurements and amounts must be stipulated in quote.
- Contractor's name board will always be visible.



- A supervisor will always be on site.
- Baseline Risk Assessment assessing the potential risks associated with the scope of work to be provided as part of the SHE file.
- SHE Management Plan to be provided as part of the SHE file.
- The correct PPE for all hazards that the contractor’s employees may be exposed to, must always be worn.
- Failure to comply will result in a non-conformance followed by a SHE Stop Certificate being issued, and the supplier will be required to leave the site until the situation is rectified.
- All scaffolding used to be SANS approved. (SANS 10085-1:2004)
- All employees who will be working at height to have medical fitness certificate to declare employee fit to work on heights, and proof of working at heights competency training thereof.
- Comply with Transnet lock-out procedure.
- Valid letter of good standing with Workman’s Compensation.
- Comply with Transnet SHE Specification for contract work Version 02.

3. Technical Requirements:

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

4. Specific Requirements:

	REQUIRED
	Specifications for Shotblast Pit Repair
	<p>1. General Requirements</p> <p>All work must comply with relevant South African National Standards (SANS) and best practices.</p>



	REQUIRED
	<p>The contractor must ensure that materials and workmanship conform to SANS 10400: The application of the National Building Regulations, and any other relevant local regulations and codes.</p> <p>The resin injection must achieve a minimum compressive and tensile strength of 65 N/mm².</p> <p>2. Materials</p> <p>Resin</p> <p>Type: Two-component epoxy or polyurethane resin specifically designed for structural injection.</p> <p>Strength: Minimum compressive and tensile strength of 65 N/mm².</p> <p>Standards: Must comply with SANS 1504-5: Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control, and evaluation of conformity - Part 5: Concrete injection.</p> <p>3. Injection Equipment</p> <p>Pump: High-pressure injection pump capable of injecting resin at the required pressure.</p> <p>Packers: Suitable injection packers with non-return valves to ensure effective injection.</p> <p>4. Preparation</p> <p>Surface Preparation</p> <p>Clean the area to be injected to remove dirt, grease, oil, laitance, and any other contaminants.</p> <p>Use mechanical means (e.g., grinding or sandblasting) to expose sound concrete.</p> <p>5. Crack Identification and Marking</p> <p>Identify and mark all cracks to be injected.</p> <p>Ensure that cracks are clean and dry before injection.</p> <p>6. Drilling Holes for Injection Packers</p> <p>Drill holes along the crack at intervals of 200-300mm.</p> <p>Hole diameter and depth should match the specifications of the chosen packers.</p>



	REQUIRED
	<p>7. Injection Process</p> <p>Installation of Packers</p> <p>Insert packers into the drilled holes and tighten securely.</p> <p>Ensure packers are installed deep enough to reach the crack.</p> <p>Mixing of Resin</p> <p>Mix the two-component resin according to the manufacturer's instructions.</p> <p>Use a clean container and ensure thorough mixing to achieve a homogeneous mixture.</p> <p>Injection</p> <p>Start the injection process from the lowest packer and proceed upwards.</p> <p>Inject resin until it appears at the next packer or until the crack is filled.</p> <p>Move to the next packer and repeat the process until the entire crack is filled.</p> <p>Monitoring and Quality Control</p> <p>Monitor the injection process to ensure complete filling of cracks.</p> <p>Check for any leaks and address them immediately.</p> <p>Post-Injection</p> <p>Allow the resin to cure according to the manufacturer's recommendations.</p> <p>Remove packers and seal the injection holes with epoxy mortar.</p> <p>8. Finishing</p> <p>Surface Finishing</p> <p>Grind or sand the surface to achieve a smooth finish.</p> <p>Apply a protective coating or paint as required to match the surrounding area.</p> <p>Adequate ventilation must be provided during the injection process</p>
	Specifications for Boundary Wall Repairs
	<p>1. General Requirements</p> <p>All work must comply with relevant South African National Standards (SANS) and local regulations.</p>



	REQUIRED
	<p>The contractor must ensure that materials and workmanship conform to SANS 10400: The application of the National Building Regulations.</p> <p>Safety measures must be implemented to protect workers and the surrounding environment during the repair process.</p> <p>2. Materials</p> <p>Concrete Slabs</p> <p>Concrete: Compressive strength of 25 MPa at 28 days.</p> <p>Reinforcement: As per design specifications, typically using high-tensile steel rebar conforming to SANS 920.</p> <p>Standards: Must comply with SANS 10100-2: The structural use of concrete - Part 2: Materials and execution of work.</p> <p>Bricks and Mortar</p> <p>Bricks: Burnt clay bricks conforming to SANS 227: Burnt clay masonry units.</p> <p>Mortar: Mix ratio of 1 part cement to 4 parts sand (by volume), conforming to SANS 2001-CM1: Construction works - Part CM1: Masonry walling.</p> <p>Plaster: Mix ratio of 1 part cement to 5 parts sand (by volume), conforming to SANS 2001-EM1: Construction works - Part EM1: Cement plaster for walls.</p> <p>Cement: Ordinary Portland Cement conforming to SANS 50197.</p> <p>3. Preparation</p> <p>Site Preparation</p> <p>Clear debris from the collapsed walls.</p> <p>Ensure the foundation and surrounding area are stable and ready for reconstruction.</p> <p>Foundation Inspection</p> <p>Inspect the existing foundation for any damage or instability.</p> <p>Repair or reinforce the foundation as necessary to ensure it can support the new wall structure.</p>



	REQUIRED
	<p>4. Repair of Concrete Slab Wall</p> <p>Reconstruction</p> <p>Foundation: Ensure the foundation is level and capable of supporting the new wall. If necessary, cast a new concrete footing with proper reinforcement as per SANS 10100-2.</p> <p>Slab Installation: Erect new or salvaged concrete slabs, ensuring they are level and plumb. Secure slabs with appropriate anchors and reinforcing bars as needed.</p> <p>Reinforcement: Use steel reinforcing bars, conforming to SANS 920, to tie the slabs together and provide structural stability.</p> <p>Joint Sealing</p> <p>Sealing: Seal joints between slabs with a suitable flexible sealant conforming to SANS 10160: Basis of structural design and actions for buildings and industrial structures.</p> <p>5. Repair of Brick and Mortar Wall</p> <p>Reconstruction</p> <p>Foundation: Ensure the foundation is level and capable of supporting the new wall. If necessary, cast a new concrete footing with proper reinforcement as per SANS 10100-2.</p> <p>Bricklaying: Lay bricks in a stretcher bond pattern, ensuring proper alignment and level. Use a mortar mix conforming to SANS 2001-CM1.</p> <p>Reinforcement: Incorporate wall ties and reinforcing bars, especially at corners and junctions, as per SANS 10164: The structural use of masonry.</p> <p>Plastering</p> <p>Surface Preparation: Clean and dampen the brickwork before applying plaster.</p> <p>Plaster Application: Apply a base coat of plaster, followed by a finishing coat, ensuring a smooth and even surface. Plaster mix must conform to SANS 2001-EM1.</p> <p>6. Finishing</p> <p>Curing</p> <p>Ensure proper curing of concrete and mortar by keeping the surfaces moist for at least 7 days.</p> <p>Use curing compounds or cover with plastic sheeting to maintain moisture.</p> <p>Surface Finishing</p>



	REQUIRED
	<p>For concrete slabs, ensure smooth and even surfaces.</p> <p>For brick and mortar walls, ensure a uniform plaster finish without cracks or imperfections.</p>
1.	Safety, Health, Environment, Risk, Quality (SHERQ) and Responsibility
6.1	The contractor will be required to provide an issue-based Risk Assessment depending on the nature of activities to be undertaken on site within Transnet premises.
6.2	The contractor accepts full responsibility for its staff's actions and will ensure that such actions at no time place the staff or property of Transnet Engineering at risk.
6.3	Should the contractor's workers participate in strikes, marches, riots or any other actions which fall outside their duties, it is the contractor's responsibility to control its personnel, restore order or, if necessary, to remove them from Transnet Engineering premises.
6.4	<p>The contractor must discourage its workers from participating in any actions, such as mentioned above, whether these are initiated by staff of the institution concerned, or by any other outside body.</p> <p>In the event of actions such as mentioned above, it is the responsibility of the contractor to calculate revised invoices and present them for payment at the end of the month in which only partial service was rendered.</p>
6.5	The contractor accepts to provide Business Continuity Plans in an event of any disruptions which might impact providing the required service to Transnet.
6.6	The contractor accepts responsibility for any losses, which occur during the service in Transnet Engineering premises.
6.7	Where keys for access to areas of the site are required and keys are given to the contractor, the necessary care and responsibility for their safekeeping will be observed. The contractor must ensure that keys are not misused or used to allow access by unauthorized persons.