

Document Title:

WORKS INFORMATION

Project Title:

Klerksdorp Sewer, Roof & Crack Repairs and Sealant Replacement.

REVISION: 02

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TABLE OF CONTENTS

1. Introduction.....	4
2. Background	4
3. Problem statement	5
4. Purpose.....	5
5. Material Specification	5
6. Description of the works	7
7. General Requirements.	10
8. Occupational Health, Safety and Environmental Requirements.	11
9. Guarantee	14
10. Record keeping	15
11. Applicable Technical Standards.....	15

1. Introduction

Transnet Pipelines (TPL), a division of Transnet SOC Ltd, provides strategic pipeline infrastructure, with associated world class pipeline logistics, for the petroleum and gas industries of South Africa. This is done in partnership with our customers and stakeholders thereby assuring the African sustainable development imperative. Established in 1965, TPL owns, maintains, and operates a network of 3 114 km of high-pressure petroleum and gas pipelines. TPL transports an average of 15 billion litres of fuel per annum. This includes diesel, unleaded petrol, aviation turbine fuel and crude oil.

The pipeline network and the liquid fuels network depots traverses five provinces, KwaZulu-Natal, Free State, Gauteng, North West and Mpumalanga with only three available intakes stations at Durban, Sasolburg and Secunda. The pipeline is laid within the servitudes which traverse through many properties (private, state owned, local authorities) and the pump stations and delivery depots located in rural, industrial, and suburban areas along the pipeline routes.

The pipelines range from 6" (150mm) to 24" (600mm) in diameter. All the pipelines have been constructed in accordance with the American Code ASME B31.4. Pressure in the pipeline network is monitored 24 hours a day, 365 days a year in the control centre in TPLs' National Operating Centre (NOC).

TPL offers fully integrated supply chain solutions from source to destination with no independent injection point into the pipeline network and one active independent distribution point at Tarlton, strategically positioned to facilitate regional integration from mainly pipeline to road and rail.

2. Background

Klerksdorp Depot is a delivery depot for refined products. As such, the depot is constructed with an oily water system to contain effluent. The effluent is collected from the free draining manifold, loading area and controlled tank farm bunded area into the separator thereafter, to the spill basin. To maintain the ullage in the spill basin, a sample of the effluent is taken to the laboratory for testing to get the permission to discharge into the municipality's stormwater system if the effluent quality is within the required parameters, failing which a waste management company will be employed to collect the effluent and dispose it accordingly. As such, the condition for Klerksdorp spill basin has deteriorated, the sealants in the manifold and tank farm have worn out and requires a remedial work to restore its condition for fit to use with no environmental risk.

TRANSNET PIPELINES	Klerksdorp Sewer, Roof & Crack Repairs and Sealant Replacement.		TECHNICAL MAINTENANCE
	Page 4 of 15	Rev. 02	

3. Problem statement

The spill basin sealants and floor screed, along with the floor and wall, display signs of wear and tear, including cracks, which can lead to potential environmental contamination. Over time, the effectiveness of the existing floor slab, walls, and sealants has diminished, allowing liquids to escape the basin. Additionally, deterioration is evident in the sealant joints within the manifold and tank farm bunded areas. These deteriorated sealant joints and cracks compromise the sealing of the bunded area, presenting environmental risks. Consequently, the spill basin, manifold, and tank farm concrete structures are unable to fulfil their primary function of safely containing and confining liquids, thus posing an environmental threat. Furthermore, this degradation will impact the overall integrity and lifespan of these structures.

4. Purpose

The purpose of this document is to detail the scope of work required from the Service Provider to:

- Repair concrete damage in the spill basin, manifold, and tank farm.
- Inspect and repair damages to the sewer system piping.
- Inspect and repair damages to the roof.
- Replace worn-out sealants

5. Material Specification

The materials to be used by the Contractor must comply with the following requirements:

5.1.1 Silicone Joint Sealant with the following specification.

Characteristics	• Self-levelling, no tooling required. • Flows into irregular joint widths and does not require tooling. • Movement capability 100% extension and 50% compression. • Ultra-low modulus. • Weather and UV resistant. • Fuel resistant, short-term exposure. • Cold applied, ready-to-use as supplied. No heating or special preparation. • Does not require a primer to bond with Portland cement.
Composition	• One-part • cold applied

	self-levelling silicone sealant.
Applications	- Can be used for concrete-to-concrete pavement joints. - For use in new construction, repair, or remedial applications. - Can be used to seal irregularly shaped and spalled joints.
Colour	Dark Gray.
Heat aging per ASTM C 792	1% loss max
Specific Gravity per ASTM D 1475	1.26 to 1.34
Curing time	21 Days
Must pass these tests after curing with no cracks or separation	- Bond, non-immersed. - Bond, water immersed. - Bond, oven aged.
Ultimate elongation per ASTM D 412	1400%
Tensile Strength @150% per ASTM D 412	9 psi
Joint Movement Capability, +100/-50 percent, 10 cycles per ASTM C 719.	No failure.
Resilience	77%

5.1.2 A two-component structural repair epoxy mortar with the following specifications:

Characteristics:	- Designed for concrete repair and restoration. - Needs no priming. - High Strength. - Resistant to oils, fuels, water, dilute chemicals.
Uses	- Application temperature - Repairing and patching defects in concrete such as honeycomb and spalls. - Layer thickness
Curing time	12 hours at 25°C
Overcoating time	8 to 24 hours at 25°C

Application temperature:	10°C to 40°C
Layer thickness:	Up to 25mm
Compressive strength @ 25 degrees Celsius	60 MPa in 24 hours 74 MPa in 7 days
Shrinkage during cure	Negligible
Solvent resistance	Resists oils, petrol, and diesel fuel
Toxicity	Non-toxic

6. Description of the works

The Contractor must supply all required labour and material to conduct the following task:

6.1 Sewer system inspection and repairs.

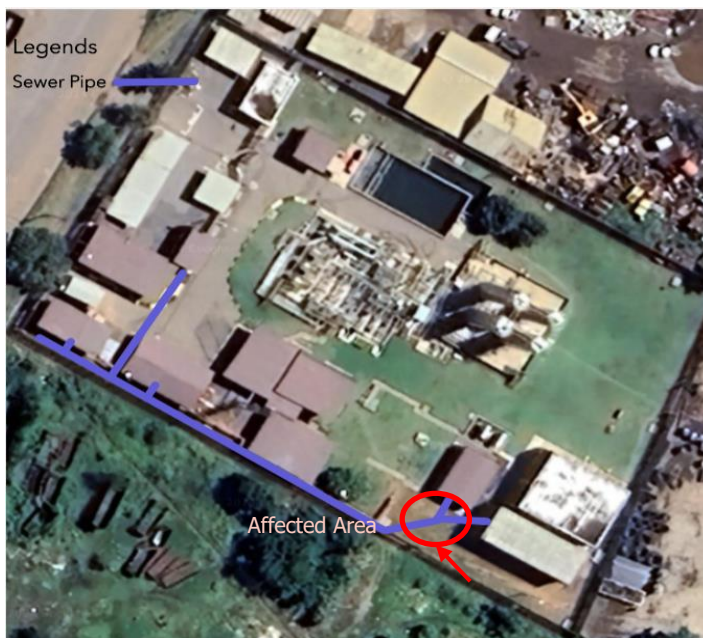


Figure 1: Klerksdorp Sewer Piping Layout.

- 6.1.1 Break the existing concrete slab.
- 6.1.2 Excavate the area to expose the sewer system piping.
- 6.1.3 Inspect the sewer system to locate the source of the blockage.
- 6.1.4 If required, supply the necessary material for the repairs, these include, but are not limited to:
 - Sewer pipes
 - Pipe joints, gaskets, seals, and fittings (elbows, tees, couplings)

- 6.1.5 Install the sewer piping, ensuring proper alignment and connection to existing infrastructure in accordance with SANS 10400-Part P standards, if required.
- 6.1.6 Supply bedding sand, if required.
- 6.1.7 Backfill the excavated area and ensure the pipe is covered with 150 mm of bedding sand on either side. The remaining section of the trench is to be backfilled in layers of 150 mm using in-situ material sufficiently compacted to the same surrounding area compaction.
- 6.1.8 Reinstate the broken concrete slabs using 25 MPa concrete, reinforced with mesh ref 245, top reinforce ensuring a 50mm cover, top reinforcement. This includes providing stirrups, spacers, formwork, and all necessary accessories. The Contractor must cast, cure and test concrete cubes at 7, 14 and 28 days.

6.2 Roof inspection and repairs at the control room, 3 m high.

- 6.2.1 Conduct roof inspections and submit an inspection report to Transnet Pipelines.
- 6.2.2 Remove damaged roof sheeting.
- 6.2.3 Detach and remove rotten wood purling from the structure.
- 6.2.4 Supply roof sheeting and fasteners matching the existing ones on the control room building.
- 6.2.5 Supply wooden purling and fasteners matching the existing ones on the control room building.
- 6.2.6 Install the new purlins and secure them with appropriate fasteners.
- 6.2.7 Install and fasten the roof sheeting using appropriate fasteners.
- 6.2.8 Supply roof paint and paint the new roof sheeting to match the existing roof sheeting colour.

6.3 Replace sealant joints in the tank farm, spill basin and the manifold.



Figure 2: Spill Basin, Manifold and Tank Farm Arial View

- 6.3.1 Carefully remove existing sealant joints.
- 6.3.2 Clean and prepare all expansion joints.
- 6.3.3 Inspect all expansion joints for damages.
- 6.3.4 Mix and apply concrete repair mortar to the damaged expansion joints in accordance with the manufacturer's instructions, where required.
- 6.3.5 Insert a sealant backing cord into the expansion joint openings, in accordance with the manufacturer's instructions.
- 6.3.6 Inject a self-levelling silicone joint sealant to all the expansion joint openings in accordance with the manufacturer's instructions.

6.4 Repair Cracks in the Bund Floors and Bund Walls of the Tank Farm, Spill Basin, and the Manifold.

- 6.4.1 Clean the slab to remove dirt, dust, sludge, oil, and contaminants.
- 6.4.2 Ream the crack 20 mm wide and 10 mm deep with an angle grinder.
- 6.4.3 Remove all loose material with a wire brush and a vacuum cleaner.

- 6.4.4 Supply, mix and apply a two-component, structural repair epoxy mortar into the reamed crack in accordance with the manufacturer's instructions.
- 6.4.5 Smooth the two-component, structural repair epoxy mortar.
- 6.4.6 Allow the two-component, structural repair epoxy mortar to cure in accordance with the manufacturer's instructions.

6.5 Waste Disposal.

- 6.5.1 Dispose all waste generated in accordance with Transnet's Minimum Environmental (009-TCC-CLO-SUS-11386) Standards for Construction document and the local municipality bylaws.

7. General Requirements.

- 7.1 Attending a site briefing prior to submission of quotation to Transnet Pipelines by the *Contractor* is mandatory.
- 7.2 The appointed *Contractor* will have to re-measure and confirm items listed in the Bill of Quantities prior to the commencement of the works to the *Project Manager*.
- 7.3 All works described in this specification represent works on existing facilities that will be in operation during the Contract. The *Contractor* needs to ensure that all necessary prior planning and precautions are taken to ensure minimal disruption to the users of the facility.
- 7.4 The *Contractor* shall supply adequate and competent labour, supervision, tools, equipment, services, and testing devices for all items necessary to complete the work. Transnet Pipelines reserves the right to terminate the Contract at any point if it is found that the *Contractor's* performance, supervision, tools, equipment, services, testing devices, and materials do not comply with specified requirements. The *Contractor* will only be allowed to claim for work completed to the specified acceptable standard.
- 7.5 The *Contractor* is required to satisfy himself that all tools provided will comply with all specifications as included in the Tender Documents. Failure to meet specifications shall render the *Contractor* liable to rectify the problem at no cost to Transnet Pipelines.
- 7.6 The successful *Contractor* is to note, with regards to work on site, that responsibility for the protection of all existing equipment and services in relation to the works shall rest solely with the *Contractor*. The *Contractor* shall be required to bear all costs that

may arise because of damage that may have been caused to equipment or services or that may arise because of his operation on the respective sites.

- 7.7 The *Contractor* shall only utilize testing devices and measuring equipment that are certified where applicable and carry a valid calibration certificate as issued by an approved calibration authority.
- 7.8 All individual entering or exiting the site will have to sign in and out in the primary and secondary access points on site and undergo a Breathalyzer test. All vehicles entering or exiting the site will be subject to searches. All equipment (i.e. laptops) needs to be declared when entering and exiting the site.

8. Occupational Health, Safety and Environmental Requirements.

- 8.1 As part of its commitment to safety, the *Contractor* must comply with OHS Act 85 of 1993, the Construction Regulations, and any other occupational health and safety regulations as amended. The *Contractor* is required to conform to the Transnet *Contractor* Management Procedure (TRN-IMS-PROC-014).
- 8.2 The Safety, Health and Environmental (SHE) Compliance File is required once a *Contractor* has been appointed. Site access will only be granted once the SHE compliance file has been reviewed and approved by Transnet Pipelines. The *Contractor* will be subjected to the Transnet Pipelines permit-to-work process related to the on-site risks identified as well as changing conditions. The successful bidder will be subjected to compulsory TPL inductions, which can take 1 to 2 hours. These inductions are to be conducted at a location determined by TPL.
- 8.2.1 The following documents are required for *Contractor* employees to be inducted in TPL sites:
- Employee dossier with applicable documentation.
 - Certified copies of IDs not older than three months.
 - Work permits for foreign nationals.
 - SAPS Police clearance certificate (SAPS 365).
 - Valid certificate of medical fitness for all – issued by Occupational Health Practitioner.
 - Proof of competence.
- 8.3 The appointed *Contractor* to be screened prior to accessing and executing the scope of services at the TPL sites. The following documentation will be requested from the *Contractor*:
- Company Tax clearance
 - CIPRO Registration
 - CK Number of the company

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- Copies of ID of directors
 - Fingerprint of company directors (use SAP 91) to be found at local SAPS.
 - Copies of ID of employees who will be working on site.
 - Fingerprints of employees who will be on site (use SAP 91) to be found at local SAPS.
- 8.3.1 The appointed *Contractor* must note that once the requested documents are submitted, SSA will take +/- two weeks to complete the screening.
- 8.4 The appointed *Contractor* shall be required to provide the following:
- 8.4.1 Site Specific Organogram of reporting structure. This document must provide all persons appointed in terms of OHS Act No. 85 of 1993 including contact details. (rev, date, approval)
- 8.4.2 Acknowledged notification to the Department of Employment and Labour of construction work.
- 8.4.3 Insurance Cover
- *Contractor* proof of good standing with the compensation fund or with a licensed compensation insurer – Letter of Good Standing
 - proof of public liability insurance cover
- 8.4.4 Management Plans
- Health and Safety Plan specific to the project based on the scope of work and client SHEQ specification.
 - Approved *Contractor* Health and Safety Policy
 - Site specific emergency plan
 - Procedure for handling Hazardous Chemical Substance's and Applicable Safety Data Sheet
 - PPE Policy and most recent issue register
- 8.4.5 Fully completed and signed Legal Appointments as required by legislation and training certificates as well as abbreviated CV attached to the appointments, minimum following appointments but not limited to:
- Act 16(2) – Delegated authority (Assistant to the Chief Executive Officer)
 - CR 5(1) (k) Principal *Contractor*
 - GSR 3, 4 – First Aider
 - GAR 9(2) – Competent Person to do Investigations / Incident Accident Investigator
 - Sec. 17(1) – SHE Representative
 - CR 8(5) – Construction Safety Officer
 - CR 8(7) – Construction Supervisor
 - CR 9(1) – Risk Assessor

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- CR 10 (1) (a) - Competent Person to Prepare the Fall Protection Plan
 - CR 23 (l) (k) – Vehicle Operator and Inspector

8.4.6 Induction application forms completed for every employee of the *Contractor* performing work on site, the following shall be attached:

- Employee dossier with applicable documentation.
- Certified copies of IDs not older than three months.
- Work permits for foreign nationals.
- SAPS Police clearance certificate (SAPS 365).
- Valid certificate of medical fitness for all – issued by Occupational Health Practitioner.
- Proof of competence.

8.4.7 Fall protection plan, specific to the scope of work and rescue plan. This shall include a task / job specific risk assessment.

8.4.8 Risk Assessments: Safe Operating Procedures

- Project specific risk assessment indicating the full scope of work – Task based risk assessments.
- Method statement / safe work procedure for the task to be performed.
- Safe work procedures

8.4.9 Signed copy of mandatory agreement provided in terms of section 37(2) of OHS Act.

8.4.10 Training records and competency certificates

- Relevant training certificates of Personnel involved in the project.
- Legal Liability for Supervisors and management
- Copies of training certificates certified within three months.
- Training matrix (Management, supervisors, and employees)

8.4.11 Copy of equipment registers for equipment to be used with copy of each item's inspection checklist, e.g.

- First aid dressing register.
- First aid checklist.
- Fire equipment.
- Safety harness.
- Ladders.
- Construction vehicles and mobile plant.
- Hand tools.
- Portable Electrical Equipment, etc.

8.4.12 Incident /Accident Management Procedure including reporting, recording and investigation of incidents and accidents with a register of reportable injuries to the Provincial Director.

8.4.13 Copy of the OHS act and its Regulations, COID Act Regulations

8.5 Everyone working in a TPL facility will be required to wear the following PPE:

- 100% cotton, flame retardant and Acid resistant SABS approved conti suit with long sleeves, fully zipped up at all times. Materials meeting the requirements of SANS 434, antistatic properties EN 1149 with silver reflective strip (50mm in width) on each sleeve around upper arm and each leg, meeting the requirements for EN471 conti suit or,
- 100% cotton, flame retardant and Acid resistant SABS approved conti suit with long sleeves, fully zipped up at all times. Materials meeting the requirements of SANS 434, antistatic properties EN 1149 with silver reflective strip (50mm in width) on each sleeve around upper arm and each leg, meeting the requirements for EN471 boiler suit (one piece overall).
- Clothing worn under the overall must be 100% cotton – Compliant Golf shirts are stock items, available at the stores.
- Safety footwear with steel toe cap, oil and hydrocarbon resistant sole, anti-perforation sole, anti-static, anti-slip sole and breathable leather uppers.
- Socks 100% cotton, antistatic used in conjunction with safety boots and / or shoes.
- Hard hat with chin straps meeting requirements of SANS 1397
- Flame retardant clothing shall always be worn in or close to areas where hydrocarbons are present in any pipeline or vessel.
- Flame retardant clothing shall also apply where there is foreseen exposure to hydrocarbons with the potential to produce flash fire.
- Thermal Jackets – Flame retardant.

9. Guarantee

9.1 All workmanship and components supplied shall be warranted for a period of 12 months from the date of installation. Upon receiving a warranty claim from Transnet Pipelines, the *Contractor* shall, at its own cost and expense and without reimbursement by Transnet Pipelines, promptly correct, repair, or replace the faulty components or equipment. The *Contractor's* warranty shall cover all costs (including, without limitation, those associated with parts, labour, technical support, travel, transportation, shipping, and handling).

10. Record keeping

- 10.1 The *Contractor* and a representative of TPL shall sign off on a quality control document for all the work that has been done.
- 10.2 Copies of these quality control documents shall be submitted to the *Project Manager* after the project.
- 10.3 The *Contractor* shall keep records of all inspections conducted, which will then be handed over to the *Project Manager* or any other authorized TPL representative.
- 10.4 The *Contractor* shall provide a Material Safety Data Sheet for each toxic, chemical, or hazardous substance that will be used in the project.

11. Applicable Technical Standards

The *Contractor* must comply with the following standards:

- SANS 2001-BE1: Earthworks.
- SANS 200-BE: Site Clearance.
- SANS 2001-EM1: Cement plasters
- SANS 2001-CC2: Concrete Works (Minor Works)
- SANS 10400 The Application of the National Building Regulations – Part P Drainage.
- Transnet's Standard Operating Procedure for Construction Environmental Management
- Construction Regulations, 2014
- Transnet *Contractor* Management Procedure (TRN-IMS-PROC-014)

All other applicable Standards and Specifications not mentioned above should be applied during the execution of project activities.