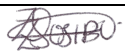
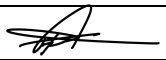
Document Title:
SCOPE OF WORK

Project Title:
SUPPLY AND INSTALLATION OF A 5250 LITRES VERTICAL WATER STORAGE TANK WITH PIPES, FITTINGS AND PUMP AT THE LANGLAAGTE DEPOT

REVISION: 02

DOCUMENT PREPARATION

#	Name	Title	Signature	Date
Compiled by	Z. Sosibo	Engineer-In-Training		18/07/2024
Reviewed by	K. Nthoba	Civil Specialist		08/10/2024

DOCUMENT APPROVAL

#	Name	Title	Signature	Date
Approved by	M. Mulaudzi	Principal Civil Engineer		08/10/2024

Table of Contents

1. Introduction

Transnet pipelines (TPL) is the largest multi-product pipelines operator in Southern Africa. It is responsible for transporting hydrocarbons and gas through a network of 3 116 km of petroleum and gas pipeline infrastructure, ensuring security of supply to the inland market. The products currently transported are unleaded petrol, diesel, aviation turbine fuel, crude oil, and methane-rich gas. Along the pipeline network are pump stations and delivery stations which traverse five provinces, KwaZulu Natal, Free State, Gauteng, North-west, and Mpumalanga.

2. Background

The Langlaagte Operations depot is a refined products delivery station located in Gauteng. It was reported that the depot was experiencing water shortages on a regular basis due to water cuts from the municipality. The water cuts resulted in the municipal water being unreliable and unsafe for drinking. As a result, the depot has made provisions for drinking water.

However, the frequent water shortages negatively impact the workplace hygiene as the depot has no access to water for sanitation purposes during these times. Therefore, there is a requirement for the installation of a non-portable water system for the depot.

3. Purpose

The purpose of this scope of works document is to outline the work to be performed by the Service Provider in installing a non-portable water system in the Langlaagte depot. The Service Provider is required to supply and install a 5250 litres water tank fitted with all the appropriate tank accessories including a 0.75 KW single stage water pump with a flow control. The tank will be used as municipal water backup for sanitation purpose. Therefore, connection is required from the municipal water line to the tank, and from the tank into the facilities. The Service Provider is also required to construct a foundation for the tank and the pump.

4. Layout

The location of the water tank to be installed is shown in figure 1.

Figure 1: The Langlaagte depot layout

5. Product specifications

The water tank components to be applied shall comply with the specifications listed below:

5.1 Vertical water tank specifications

Material	Linear low-density polyethylene (LLDPE)
Size	5 250 Litres
Diameter	1 820 mm
Height	2 255 mm
Suitable for	Water (SG1)
Inlet	40 mm female water fitting
Overflow	40 mm female water fitting
Outlet	40 mm water fitting
Lid	420 mm

5.2 Pump specifications

Power supply	(Single Phase) 230 V +-10% @ 50 Hz
Additions	Flow control switch
Motor output	0.75 Kw (1HP)
Load speed	2 850 RPM
Flow Rate	120 L/PM
Max pressure	10 Bar (146 PSI)
Gauge Increments	0.2 Bar
Pump height	13-33 H/M
Amperage	4.9 A
Max. Liquid Temperature	+90 ℃
Protection Degree	IP44
Gauge Measurement	Bar
Pump Amperage	4.9 A
Max Ambient Temperature	+40 ℃
Starting Pressure Range	35 Bar (51 PSI)
Power Output	0.75 KW (1 HP)

6. Description of the works

The work to be conducted at the Langlaagte depot includes:

6.1 Water tank and pump foundation

6.1.1 Remove and store the grass from the surface soil prior to excavation.

6.1.2 Carefully hand excavate a trench of 2220 x 2220 x 225 mm deep (refer to drawing PL 122718).

6.1.3 RIP and re-compact the 150mm in-situ material to 90% Mod AASHTO.

6.1.4 Lay 150 mm of G5 aggregate material and compact to 93% Mod AASHTO.

6.1.5 Install concrete formwork of 2220 x 2220 x 150mm.

6.1.6 Cast a concrete slab of 2220 x 2220 x 150 mm thick in-situ with a strength of 25 MPa. The concrete should be cured for a minimum of two days before the installation of the tank.

6.1.7 The concrete slab must be reinforced with mesh Ref 193 on the top side and bottom side and have a minimum concrete cover of 30mm.

6.2 Installation of water tank

6.2.1 Supply and install the 5250 litres water tank with a floating valve kit connected to the inside of the tank inlet according to the manufacturer's instructions, ensuring it is securely positioned.

6.2.2 Carefully hand excavate trenches for the new pipe route and along the municipal tie-in point as marked in drawing PL 122710.

6.2.3 Safely store the excavated soil for later use when backfilling. Cover and safeguard the soil to protect it from erosion and contamination.

6.2.4 Cut the existing steel water pipe at the tie-in point and connect it with a new pvc pipe using the appropriate fittings.

6.2.5 Supply and install a ball valve on the new pipe as shown in drawing PL 122710.

6.2.6 Construct a 230 x 230 x 500 mm brick chamber with a lid to house the ball valve.

6.2.7 Connect the new pipe to the water tank.

6.2.8 Supply and connect a pump with a flow control switch in accordance with the specifications listed in 5.2.

6.2.9 Supply and connect a new pipe and fittings from the outlet of the tank to the inlet of the pump with a y-strainer. Use appropriate fittings and ensure a secure connection to prevent leaks.

6.2.10 Supply and connect non-return valves along the pipe route as shown in drawing PL 122710.

6.2.11 Construct a 230 x 230 x 500 mm brick chamber with a lid to house the non-return valves.

6.2.12 Connect the pump to the building supply line using appropriate fittings according to the manufacturer's instructions.

6.2.13 Backfill the trenches with stockpiled material, compact and reinstate to original condition.

6.2.14 Fill the tank with water and test the operation of the floating valve, pump, ball valve, and non-return valves. Ensure that the pump starts and stops correctly based on water demand and pressure settings.

6.3 Supply of electrical components for pump connection

The service provider is required to supply the following electrical components:

Description	**Quantity**
Outdoor power socket (230 V)	1
Circuit Breaker (10 A)	1
Electrical Cable (2.5 mm^2)	30
PVC conduit 25 mm & connectors	30

6.4 Waste Disposal

6.4.1 Dispose waste in accordance with Transnet's Environmental Standards for Construction and the local municipality by laws.

7. General Requirements

7.1 Attending a site briefing prior to the *Contractor's* submission of a quotation to Transnet Pipelines is mandatory.

7.2 The plumber is required to produce a CoC (certificate of compliance) after completion of the work.

7.3 The appointed *Contractor* must note that the materials specified in this works information must only be applied for by professionals who are accredited by the manufacturer. The appointment of these professionals or acquiring training from the manufacturer is the responsibility of the *Contractor*.

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 working on site, that responsibility for the protection of all existing equipment and services shall rest solely with the *Contractor*. The *Contractor* shall be required to bear all costs that may arise as a result 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 The *Contractor* shall only be allowed to submit claims upon completion of all the specified works, in accordance with the pricing instructions.

7.9 There shall be no fee charged for any such estimate, and the estimate shall include travel, labour, and material costs.

8. Safety Plan

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 *Constructor* Management Procedure (TRN-IMS-PROC-014).

8.2 The 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
- 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
- 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 mandatary 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:

- Dromex DW – D59 FA, 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,
- Dromex DW – D59 FA - O, 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 – Parka Dromex DW D59-SABS Flame retardant acid resistant 100% cotton (inclusive of the lining of the jacket).

9. Environmental Management

9.1 The appointed *Contractor* must comply with Transnet's Minimum Environmental Standards for Construction document (009-TCC-CLO-SUS-11385) as attached in Annexure B.

9.2 The *Contractor* shall comply with the statutes that prohibit pollution of any kind. These statutes are enacted in the following legislation:

- The National Environmental Management Act, 107/1998
- The Environmental Conservation Act, 73/1989; and

- The National Water Act, 36/1998

10. Guarantee

10.1 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).

11. Record Keeping

11.1 The *Contractor* and a representative of TPL shall sign off on a quality control document for all the work that has been done.

11.2 Copies of these quality control documents shall be submitted to the *Project Manager* after the project.

11.3 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.

11.4 The *Contractor* shall provide a Material Safety Data Sheet for each toxic, chemical, or hazardous substance that will be used in the project.

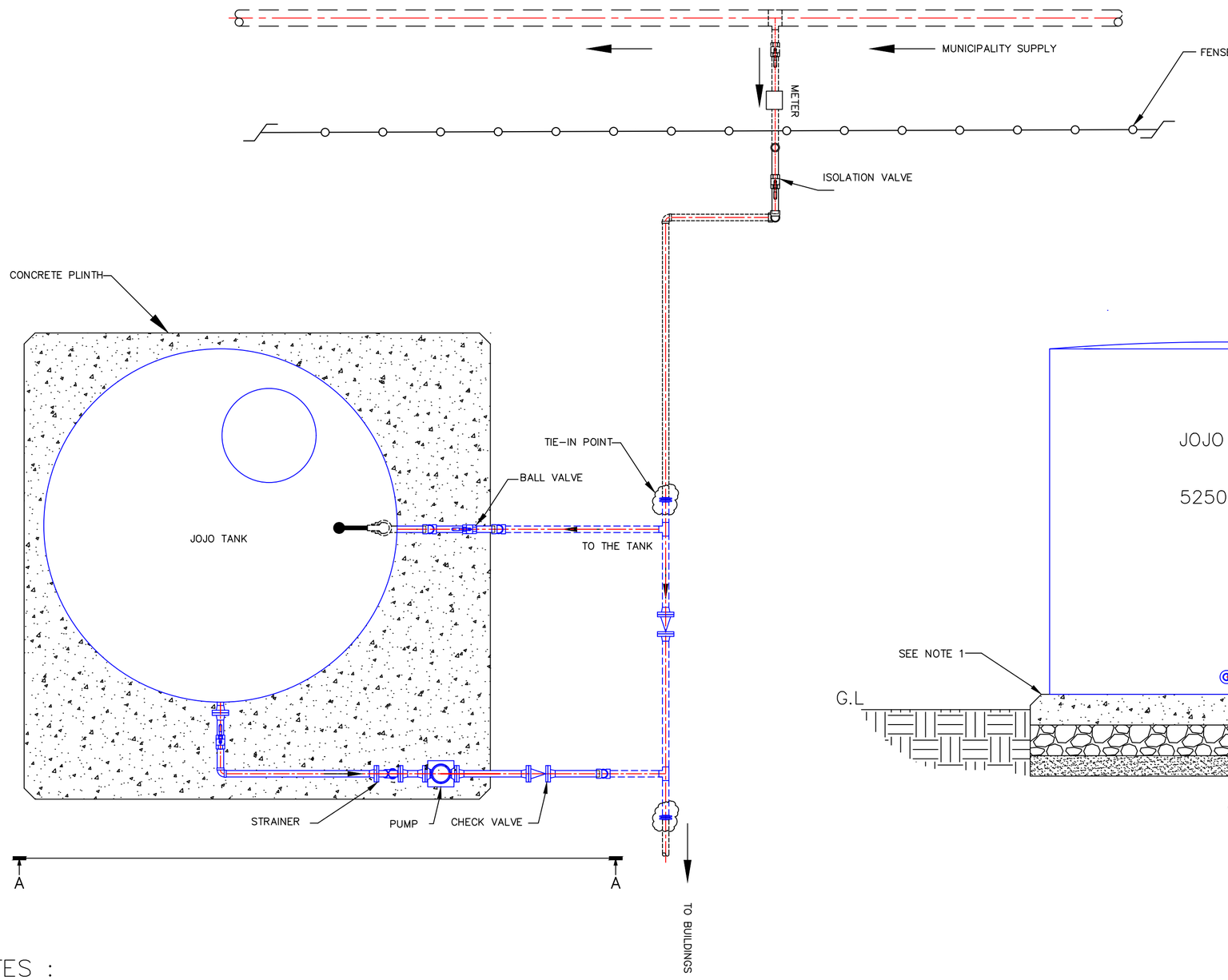
12. Technical Standards

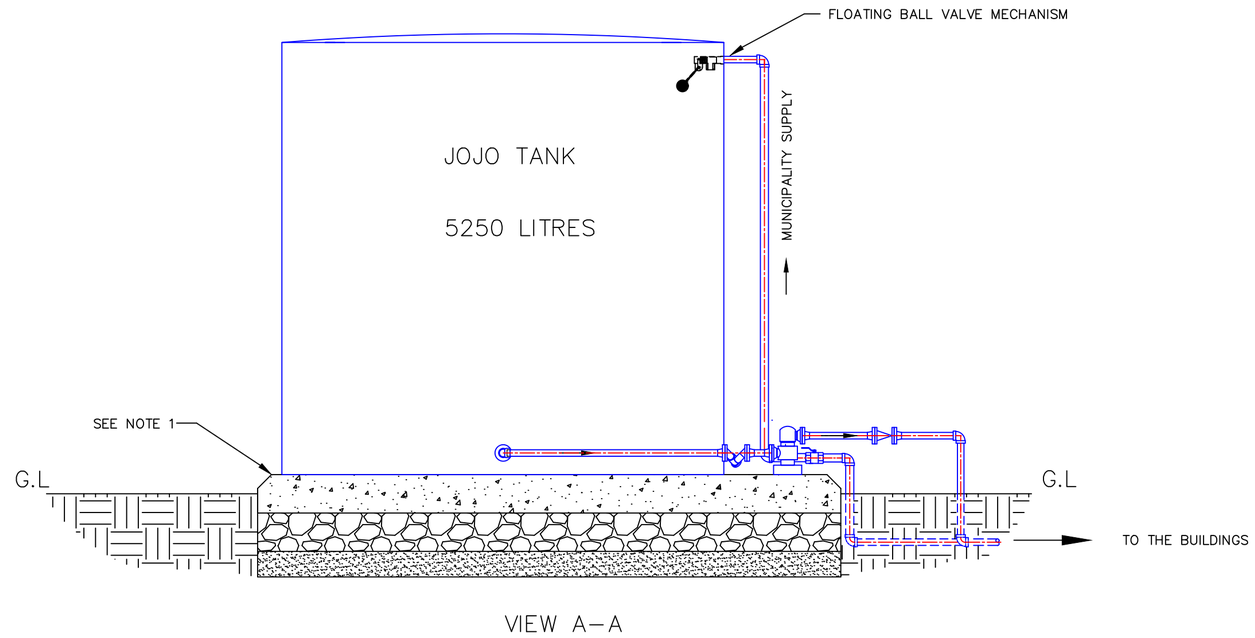
The contractor must comply with the following standards.

- SANS 2001 – BE1 Earthworks (General)
- SANS 2001- DP1 Earthworks for buried pipelines and prefabricated culverts
- SANS 2001-CC2 – Concrete Works (Minor Works)
- SANS 2001 – DP6 Below ground water installations
- Transnet's Standard Operating Procedure for Construction Environmental Management
- Transnet's standard operating procedure for Construction Environmental Management

- Transnet Contractor Management Procedure (TRN-IMS-PROC-014)

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





VIEW A–A

NOTES :

1. FOR CONRETE PLINTH DETAILS REFER TO PL–122718
2. 1'' PVC PIPE TO BE USED
3. PRESSURE SWITCH TO BE INSTALLED ON THE PUMP
4. TANK TO BE PLACED INFRONT OF MCC ROOM

APPROVAL			
DISCIPLINE	NAME	SIGN	DATE
ELECTRICAL			
MECHANICAL	Barry Trotter		08.10.2024
MC&I			
PROCESS			
CIVIL	Makhado Mulaudzi		08/10/2024
FIRE			

REVISIONS					
REV	BY	DATE	DESCRIPTION	CHK	APP
A	NK	10–06–2024	FOR DISCUSSION PURPOSES	TN	ZM
B	NK	07–10–2024	FOR APPROVAL	TN	ZM

TRANSNET pipelines

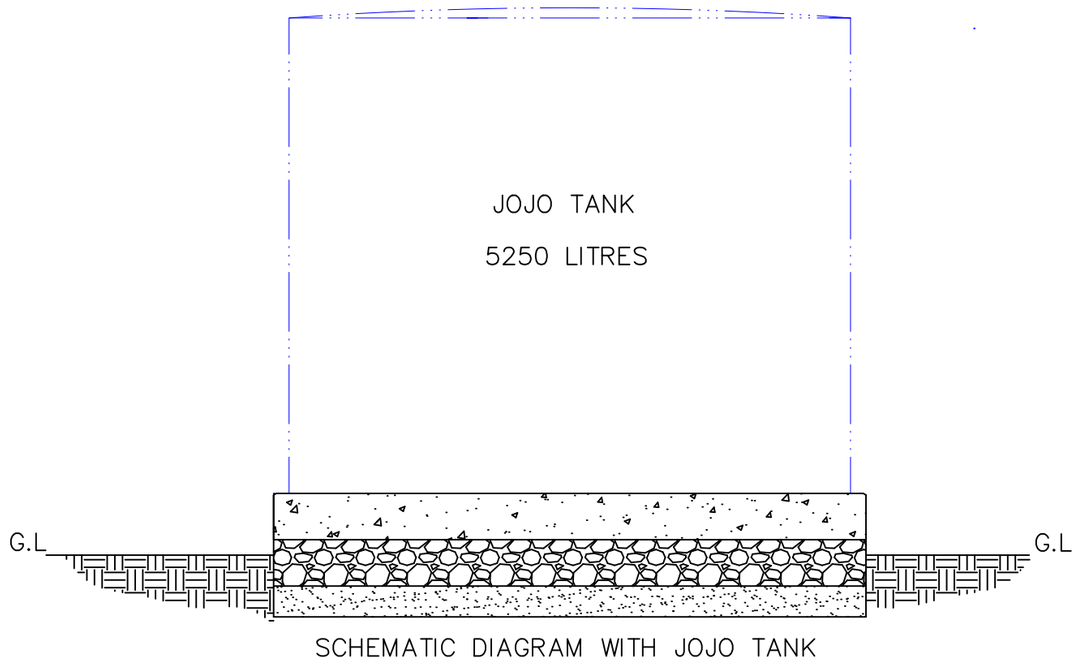
LANGLAAGTE DEPOT

JOJO TANK WATER SUPPLY

PROJECT NAME			
DRAWN	NK	REF.	–
TRACED	CAD	DATE	02–05–2024
CHECKED	TN	APPROVED	ZM
SCALE	NTS		
DRAWING No.	EDMS NO. PL 122710	REV	B

A2

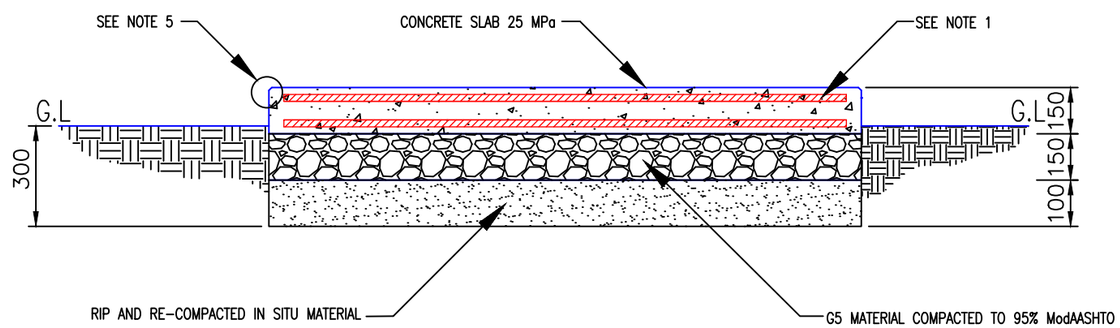
A3



SCHEMATIC DIAGRAM WITH JOJO TANK

NOTES:

1. MESH REF 193
2. ALL DIMENSIONS ARE IN MILLIMETERS
3. PLINTH AREA SIZE IS 2220mm X 2220mm
4. MINIMUM CONCRETE COVER TO BE 300mm
5. ALL CONCRETE CORNERS TO BE CHAMFERED BY 20mm X 20mm



CONCRETE PLINTH

APPROVAL			
DISCIPLINE	NAME	SIGN	DATE
ELECTRICAL			
MECHANICAL			
MC&I			
PROCESS			
CIVIL	Makhado Mulaudzi		08/01/2024
FIRE			

REVISIONS

REV	BY	DATE	DESCRIPTION	CHK	APP
A	NK	05-08-2024	FOR DISCUSSION PURPOSE	KN	ZM
B	NK	07-10-2024	FOR APPROVAL	KN	ZM

TRANSNET pipelines

LANGLAAGTE DEPOT

(CONCRETE PLINTH FOR JOJO TANK)

PROJECT NAME	TRANSNET PIPELINES		
DRAWN	N.K	REF.	–
TRACED	CAD	DATE	28-06-2024
CHECKED	K.N	APPROVED	Z.M
SCALE	NTS		
ORIGINAL No.		EDMS No.	REV
		PL 122718	B