
ANNEX A: STATEMENT OF WORK (SOW): RFP/HCR/KAD/SUP/2022/04

1. Background

Al Tiboun village is in Babanusa locality and is home to 60,000 persons. About 6,000 are South Sudanese refugees. The entire population is served by four water sources; one of the four water sources is not functional. People and animals share the same water points. The average water supply is less than 10 liters per person per day and with the presence of livestock in the village and the surrounding rural villages, the supply needs to be increased to 25 liters per person per day. Generally, there are no household-level water connections across the entire village. Households fetch water from public standpipes connected to the storage facilities and transport it home through donkey carts or purchase water from water vendors brought near their homes. Refugees have settled at the outskirts of the villages approximately 1km from the nearest water source.

UNHCR intended to upgrade and rehabilitate the existing water supply system this includes solarization of the system to improve its capacity, and performance and increase access to safe drinking water for refugees, IDPs, and host communities.

2. General Information

2.1 Objectives, Purpose & Expected Results:

The objective of the project is to upgrade and rehabilitate one existing water yard including solarization of the system in Al Taboon villages to increase the water quantity access to safe drinking water for 60,000 People. The project will also contribute to strengthening social cohesion and promoting peaceful coexistence between refugees and the host communities.

2.2 Location and description of the assignment:

All the projects will be in Al Taboon village.

3. Scope of Work (Work Assignment)

The scope of work for this tender includes all activities as follows:

3.1 Connection and Rehabilitation of the Existing 50m³ Elevated Water Storage Tank:

Supply, install, test, and commission of 700 m length UPVC 2" diameter pipeline from existing 50 m³ elevated water storage tank to the public tap stands.

Raise up and lift the tank on 6m High existing tower and construct of an outlet and inlet with a 23" control valve.

Revise the water tank connection, and welding of the storage tank to stop any water leakages and paint the tank internally and externally with anti-rust paint.

3.2 Construction of 2 Public Tap Stands:

Tap Stand Platform- The tap stand shall be constructed on-site, and it includes two side walls constructed of bricks or sand cement blocks. A concrete slab must be cast on top of the side walls to form the platform for resting the water containers for filling from the taps as illustrated in the drawings.

Construction of Tap Stand Platform Side walls constructed of bricks shall be in accordance with the brickwork's specification described in this document. The walls' dimensions shall be in accordance with the technical drawings. The concrete slab dimensions are as shown in the drawings. The platform concrete shall be in accordance with concrete class B specification, reinforced by 10mm diameter bars.

The contractor shall supply and fabricate the distribution pipe system to connect 10, 1" diameter taps as shown on the drawings and specifications.

3.3 Animal Troughs:

The troughs shall be fabricated from mild steel sheets of 3mm thickness. The standardized trough capacity is 1 m³. The Construction Standards for the animal trough will be in accordance with the Technical Drawings, Bill of Quantities, and the General Specification and Construction Standards of Animal Troughs. The size of an animal trough is 3 m long, 0.9 m wide, and 0.45m deep. The trough should be fabricated from M.S. Plates 3 mm and top frame of M. S. Angles 1 ½ × 1 ½ × 4 mm and Gusset Plates M. S. Plates 3 mm. All are welded from inside and outside and the edges of the cattle troughs need to be folded.

3.3 Cart and Truck Filling Points:

Shall be constructed as per Technical Drawings, Bill of Quantities, and Specifications attached. The construction of standpipes for cart and truck filling involves the supply of materials (including gate valve, connectors, reducers, elbows, tape, glue, pipes, connectors, elbows for drainage, etc.), transport and storage, labor, and all necessary equipment for completion of work. The construction works also include the drainage system as per Standard drawing and as instructed by the Engineer on site.

3.4 Women Center Water Connection

Extend water connection from the main water pipeline to the women's center. The SOW includes the provision of 65 meters 2" UPVC pipeline, a 2m³ horizontal plastic water storage tank, Height of the Tower shall be 3 meters to support 2 tonnes of water plus the own weight of the tank and withstand the wind.

The contractor shall provide the shuttering and all necessary items required to undertake the foundation and concrete works, and erection of the tower and the tank up to the satisfying completion stages. The SOW shall include the provision of all required fittings, valves, reducers, outlet and inlet, caps, taps, and any other necessary material and equipment for the completion of the work.

3.6 Training of the Pump Operators on Smooth Operation and Maintenance

Training of the pump operators on smooth operation and maintenance of the water system including switching on and off the installed solar system and troubleshooting minor technical defects.

4. Key Deliverables

- Provision & installation of the solar power system capacity is 26,400 watts peak to run the present water pump located in the borehole.
- Provision & installation of the fence for protection of solar panels & other components.
- Provision & installation of earthing system & lightning arrester.
- Rehabilitation 50m³ existing elevated water storage tank including welding of the storage tank to address any water leakage and painting the storage tank internally and externally and connection of 700m 2" diam UPVC water line from the water storage tank to the tap stands and women center
- Rehabilitation/construction of 2 Public Tap stands and perform distribution line connection from the existing water storage tank to tap stands
- Manufacturing and installation of 4 animal troughs
- Construction and connection of Cart and Truck Filling Point
- Perform water connection from the main water line to the women's center
- Provision and installation of 60 KVA backup generator
- The contractor shall submit samples of the materials used in the project UNHCR for approval before using them in the work.
- UNHCR may reject any material that does not comply with the described specifications in the BOQs and item 3 of this Statement of Work (SOW) (Location and Description of the assignment), in which case the contractor without any extra cost should replace the failed materials. UNHCR or the delegated Supervision Committee can ask for any test to ensure the quality of the material used and work. Only approved materials and workmanship should be used.
- There will be no variation in the contract price as a result of any variation in the costs of materials for permanent or temporary works or of consumable stores fuel or power or in the rates of wages or allowances

payable to or in respect of labour or because of any changes in the labour employment conditions or as a result of the introduction or operation of any law statute or order.

- The Contractor shall be responsible for the preparation and actualization of detailed health & safety and accident prevention plans, detailed time schedules and cash flow estimates, site protection and ensuring people and traffic mobility.
- The contractor shall transport and, at his expense, all demolished rubbles and exceeded building materials to locations minimum distance of 2-3 km or as specified by the municipality and shall be responsible for cleaning out the site and it is surrounding areas at the end of usage.
- The Contractor/supplier should provide a written warranty for supplied equipment and materials, the warranty should cover a period of at least two (2) years inclusive of labour, transportation, and expenses that are needed for the repair/replacement of defective equipment.
- Up on completion and before acceptance of the work the contractor/supplier shall furnish UNHCR with a written warranty stating that all works executed under the project are free from material defects and workmanship.

5. The Contractor Requisites

5.1 Experience

The contractor shall have done a similar number of works or projects. The similarity should be within the size and the nature of the requested works in this SOW. The previous contractor's client can be UN agencies, NOGs, governmental organizations, or large-scale private sector companies, and they should be able to provide a reference for the contractor.

5.2 Minimum Staff

The contractor shall appoint a qualified project supervisor with at least five years of professional experience to work full time in supervising the implementation of work during the whole contract and warranty periods, and both the contractor and his/her engineer should work closely with the project supervisor for UNHCR. The contractor shall appoint a qualified construction/water supply Engineer with at least five years of professional experience in the construction, upgrading/rehabilitation and solarization of water yards

5.3 Minimum equipment

The bidder shall own or have access to all necessary number equipment needed to undertake the works. The availability of the required equipment should be checked before launching the operations.

6. Bill of Quantity (BOQ)

The specified job is all provisional, including the provision of materials and workmanship, providing water and electricity for the implementation and all other requirements to implement the job perfectly. The bidder must visit the site prior to submission of bid documents. The cost of this item should be included /embedded in the other items. Below is the BOQ:

item	Description	Unit	Quantity
1	Mobilization of equipment, personnel, and construction materials to the project site	LS	1
2	Welding of the storage tank to address any water leakage and painting the tank internally and externally with anti-rust paint.	NO	1
3	Provision of backup generator 60 KVA model with a prime power output of 60KVA, 48 KW and stand by the output of 66 KVA, 53KW at 0.8 power factor, 3 phase, 50 Hz at 1500 RPM, fuel capacity 180 liters, Dimensions (L/W/H) of 2300 x 1045 x 1551 or other equivalents to Perkins UK	NO	1
4	Construction and fabrication of tap -stand of 10 No 1" faucets. The tap stand shall be constructed on-site, and it includes two side walls constructed out of first-class bricks 25 *12cm*7cm. A concrete slab is cast on top of the side walls to form the platform for resting the	NO	2

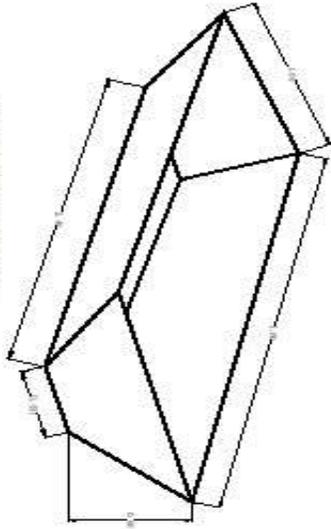
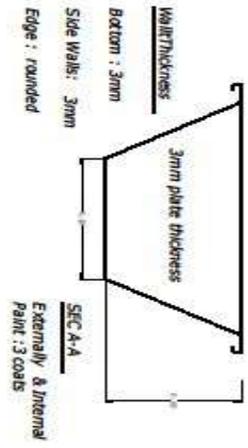
	water containers for filling from the taps as illustrated in the drawings attached.		
5	Manufacturing and installation of four water troughs connected to distribution pipeline up to the standpipe for filling tankers and carts. Excavation of 0.4m deep trenches, pipe laying, and backfilling as per the attached drawing.	LS	4
6	Provision and installation of distribution UPVC pipeline system, 2" diameter with 2 water meters, 2" sluice control valve from elevated water tank up to the distribution points and women/mother and childhood center. Excavation in trenches for water pipeline cost included in the unit cost.	meter	600
7	Extend water connection from the main water line to the women's center the SOW includes provision of 90 meters 2" diameter UPVC pipeline, 2 m ³ horizontal plastic water storage tank, the height of the tower shall be 3 meters to support 2 tons of water plus own weight of the tank.	NO	1
8	Manufacturing and installation of four water troughs connected to distribution pipeline up to the standpipe for filling tankers and carts. Excavation of 0.4m deep trenches, pipe laying, and backfilling as per the drawing.	LS	4
9	Supply & installation of solar panels, 440-watt peak monocrystalline (half cut) each solar panel must have one of these certificates such as ISO, CE RoHS, UL, IEC, and TUV. Each PV module deployed must identification tag which should be able to withstand harsh environmental conditions and consist of the following information: * Name of the manufacturer of the Solar panels. (PV modules) * Month and year of manufacture for each solar Panel. * Panel (Module) Wattage, I _{max} , V _{max} , FF ...etc. * Unique serial number of the Panels (PV modules).	Each	60
10	Provide & installation: Variable Frequency Driver (VFD)26 Kw three-phase 415 volts compatible with existing pump & solar panels configuration. The VFD must have an IP65 enclosure & has housing against severe weather conditions. The VFD must be provided with protection such as overvoltage, undervoltage, and overload. Etc The VFD must meet one of these, ISO, CE, RoHS, and IEC Certificates.	Each	1
11	Supply, fabrication, construction, and installation of the Bolted support structure for holding 60 Pcs of solar panels 440-Watt peak modules, the support should be anchored to a concrete base, and the structure withstand wind speed (40 m/sec), the support structure should be from galvanized steel or heavy pipe & angles with pre-coated anti-rust as base paint. it's a ground-mounted concrete base (40*40*50) cm. * Support structure with tilted angle 15.	Set	1
12	Supply DC16 mm cables (100 yards) single core one roll is red & one roll is black colour the cables must be hosing with conduit or plastic (PVC) pipe for protection, cables shall meet the requirements of one of these certifications ISO, RoHS, IEC, and TUV.	Roll	2
13	Ac Cables 16 mm- 4-core Supply must be hosing with conduit or plastic (PVC) pipe for protection (one rolls length 100 yards). cables shall meet the requirements of one of these certifications ISO, RoHS, IEC, and TUV.	Roll	2
14	Junction boxes (combiner Box) for Solar Panels with Dc Fuses- DC -Fuses (24); Pcs (25Amp 1000 Volt) with provided with cable glands, & conduit. The combiner box must be manufactured from fiberglass reinforced plastic (FRP)/ thermoplastic with IP65 protection, & shall be waterproof, and dustproof. The terminals should be connected to copper bus bar arrangement of proper sizes to connect cables from solar modules arrays & variable frequency Driver (VFD).	Pcs	1
15	Change over switch 200 Amp, 415 Volts, 3 phase.	Pcs	1

16	Lighting arrester& earthing system include star +rod with cable 16 mm single core with color green& yellow, 30 Meters, equipotential busbar, earthing rods, set of joint cable, set of screws to the joint module via support structure.	Set	1
17	Provide galvanized Iron poles 2-inch high 2 m with concrete base 30*30*40 cm and a chain-link wire with a secure distance of 3m from each direction (distance between fence & solar panels) to protect the Solar panels and other components.	Job	1
18	The installation cost of the solar system & electrical work	Job	1
19	Training of the pump operators and guards for two days on smooth operation and maintenance of the water system including switching on and off of the installed solar system and troubleshooting of minor technical defects.	Job	1

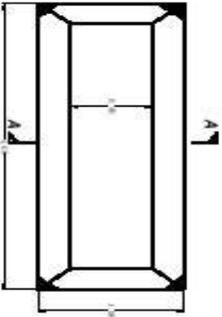
7. Site Drawings:

Below pages, are 8 sets of the site drawing.

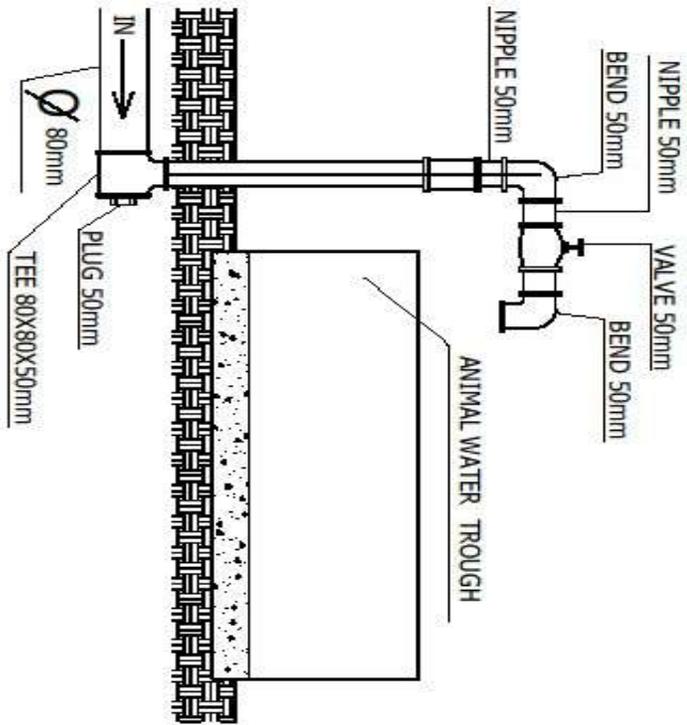
1. Technical design of the Generator room 1
2. Technical design of the Animals Trough 2
3. Technical design of the Tanker Filling Points 3
4. Technical design of the Public Stands Pipes 4
5. Technical design of the Inlet & Outlet Pipes Arrangements 5
6. Technical design of the 50m3 of Elevated Water Tank 6
7. Water storage tanks at women/mother and childhood center
8. Technical design of the General Water Station 7



Steel Animal Troughs



Dimensions
 Top: 3.00*1.00m
 Bottom: 2.4*0.4 m
 Height: 0.6m



Drawing Title:

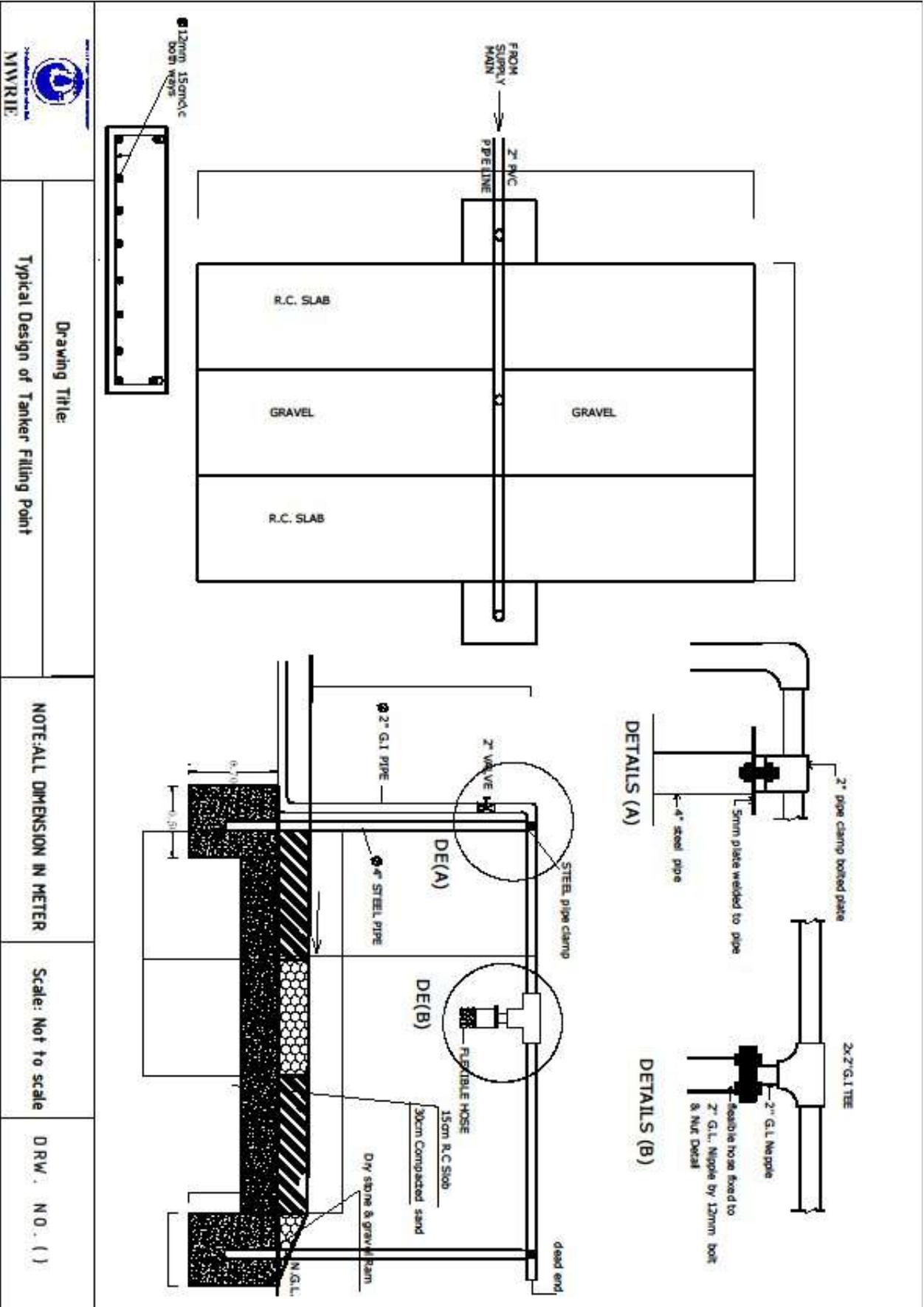
Typical Design of Animal Trough

ALL DIMENSION IN METER

Scale: Not to scale

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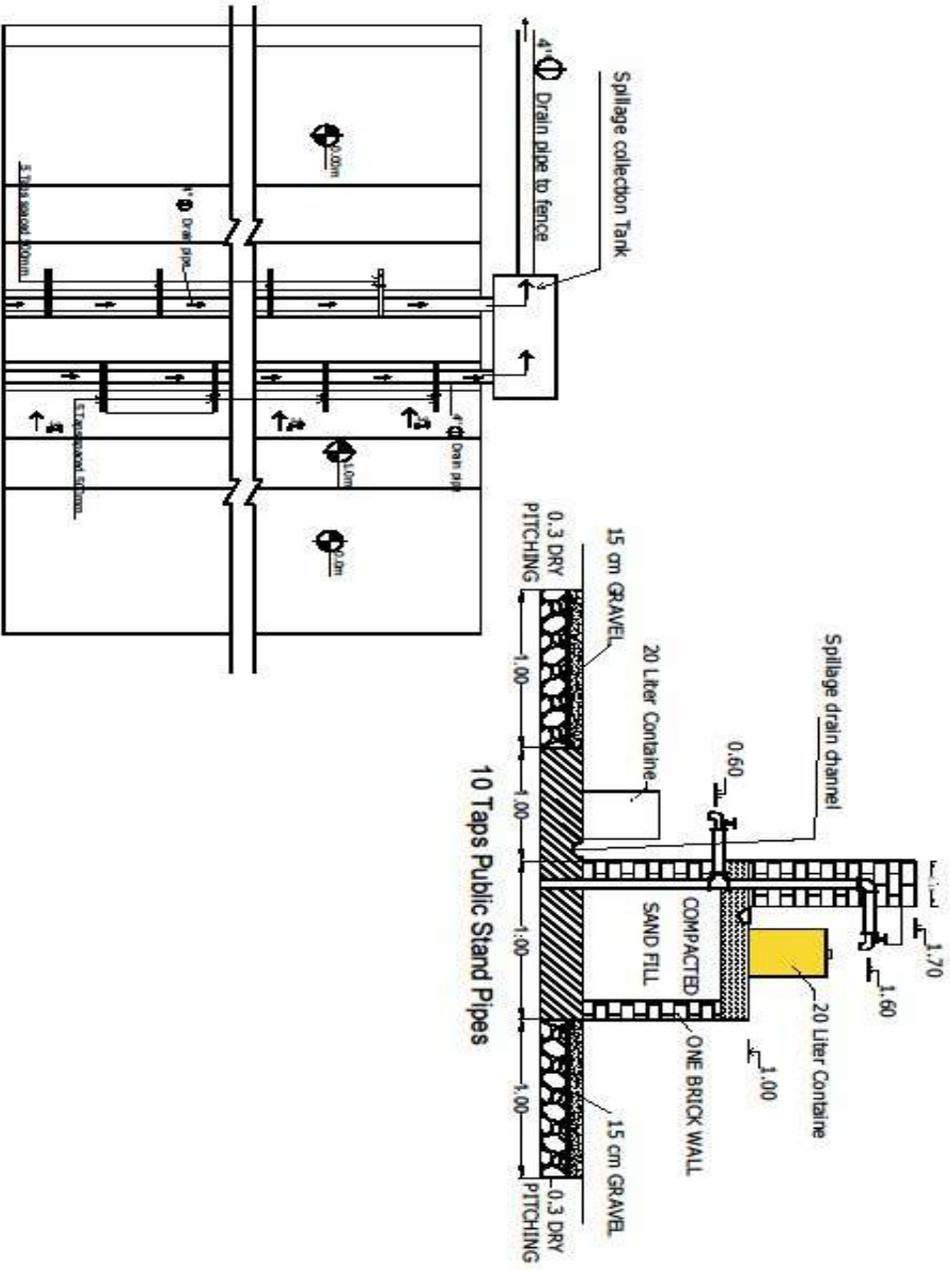


Drawing Title:
 Typical Design of Tanker Filling Point

NOTE: ALL DIMENSION IN METER

Scale: Not to scale

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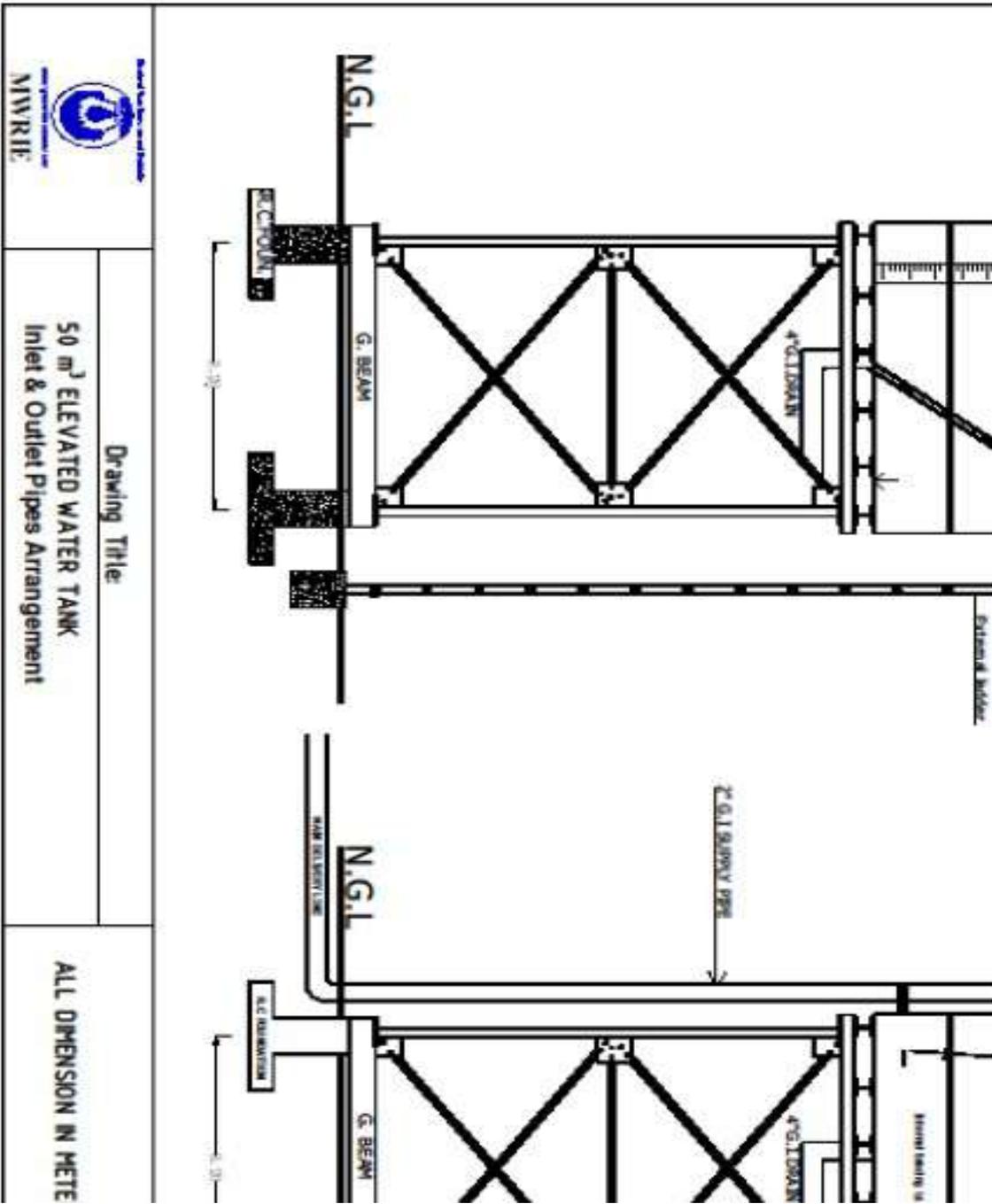


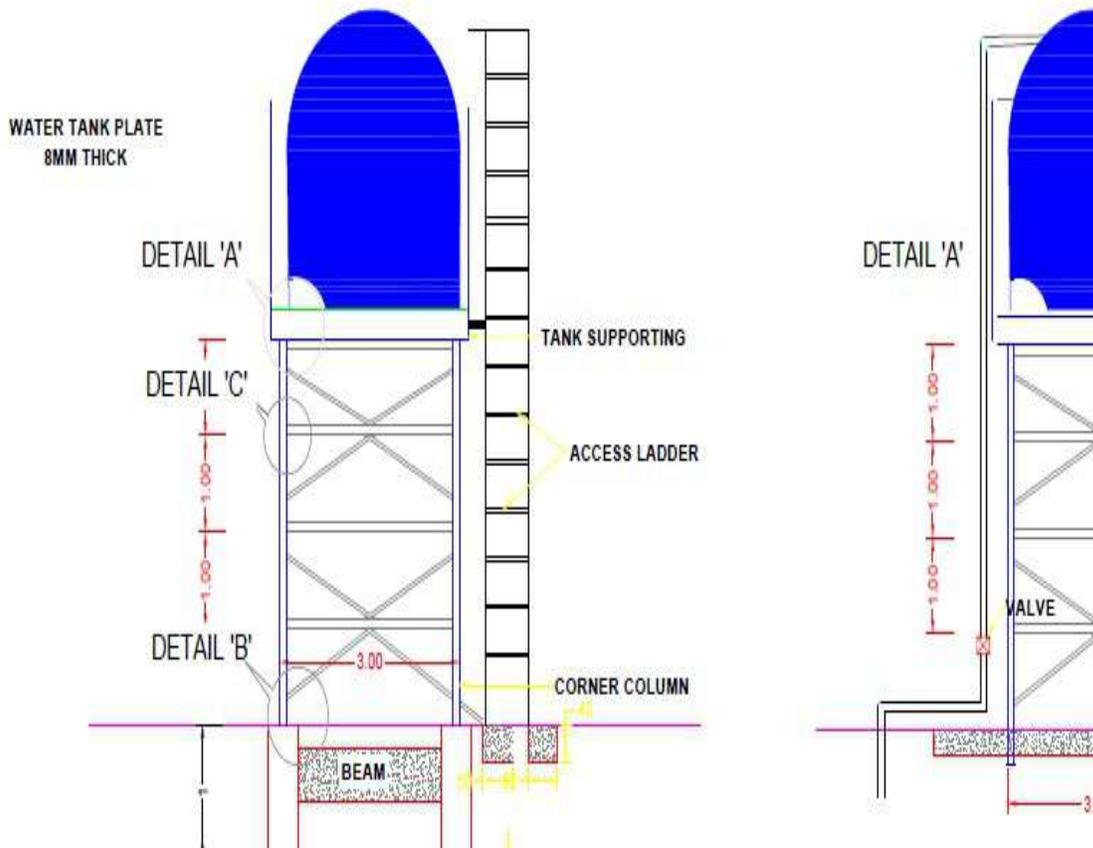
Drawing Title:
 Typical Design of Public Stand Pipes

ALL DIMENSION IN METER

Scale: Not to scale

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Layout of the water storage tank at women and child center

