Calamba Water District
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ISO Certificate Registration No. PHP QMS 21 93 0047

PROJECT :**PROPOSED 1490CUM GLASS FUSED TO STEEL BOLTED TANK WITH BOOSTER PUMPS**
LOCATION :**Upper BPS, Brgy. Bucal, Calamba City**
DATE :**June 24, 2022**

SCOPE OF WORKS AND SPECIFICATIONS

SCOPE OF WORKS

The work calls for the performance for the Design, Supply & Construction of One (1) Glass Fused to Steel Bolted Tank with a net capacity of 1490 Cubic Meter complete with Booster Pumps, Motor Controllers, Pipes, Fittings and Required Valves.

Tank Specifications

A. Tank Design
The tank must be designed suitable for seismic zone 4, 15 psf Deck Live Load and a maximum wind speed of 200 mph.

B. Tank Details

Diameter	: 14.52m
Height	: 9.0m
Floors	: Glass fused to steel
Wall	: Glass fused to steel
Roof	: Aluminum deck Roof

With Level Indicator, roof Vent and Internal & External Ladders

Glass Fused to Steel Tank Accesories:

- Silicone sealants applied on the tank wall
- Exterior reinforcing ring (where required by design).
- 1 x Manway 24 " installed on the tank wall
- 1 x Vertical cage ladder with a 1*1M platform.
- Aluminum deck roof with HDG perimeter handrail
- Magnetic water level indicator

Specification of Glass Fused to Steel Tank:

- The tank structure design should strictly conform to the AWWA D103-09 standard, while the coating for drinking water should strictly conform to the ISO 28765:2016.
- Edge protection of each panel should be with enamel coating (applied with cookware special edge protection technology)
- Each steel panel need to pass the 1500V holiday spark test, test report issued from the factory is needed
- All steel plates and sheets are to be sourced from reputable international steel mills and produced by a hot rolling process.
- Sheet need to be treated with shot blasting, shot blasting shall be performed to the equivalent of SSPC SP10

Specification of Sealant:

- The sealant shall be used to seal lap joints, bolt connections, and sheet edges
- The sealant shall cure to a rubber-like consistency and have excellent adhesion to the glass coating, have low shrinkage and be suitable for interior and exterior exposure.
- The sealant for drinking water applications shall be suitable for drinking water and be compliant to US FDA standard. The manufacturer shall provide the copy of a valid certificate issued by a third party certifying agency during the approval stage.

Specification of Glass Coating:

- The tank coating shall meet the quality requirement on ISO 28765:2016, certificate of ISO 28765 should be provided during approval stage
- Both interior and exterior of the panel should be in blue color(RAL 5004)
- For drinking water: 2-Coats & 2-Firing Process need to be applied to both side of panel,coating thickness should be 200-450 µm, Holiday test: 1500V

Specification of Roof:

- The design live load of the deck roof is at least 15psf
- The roof should be designed with little slope for water draining.
- All of the steel structure for roof should be steel HDG
- The roof should include HDG steel perimeter handrail
- The roof is equipped with 1* 650x650mm hatch installed near the ladder platform, and 1*400x600mm vent

Manufacturer's Qualification:

- The tank manufacturer should have ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certificates

C. Design and Construction

The Design and Construction of Glass Fused to Steel Bolted tank is with steel floors mounted to a concrete pedestal.

D. Tank Installation

The tank structure should be installed by the accredited and trained Engineers and installation crews suitably skilled utilizing the prescribed methodology and procedure developed by the tank manufacturer. Included in the tank installation are leak testing by hydrotest, Disinfection and Concrete foundation.

E. Tank Concrete Foundation

The tank is designed to sit on simple ring beam with assumed soil bearing capacity of 2000psf.

F. Electro-Mechanical Specification

Supply and installation of-

One (1) set Triplex Pump System consisting of the following:

F.1 Three (3) units Submersible Pump, capable of delivering 125cu.m/hr at 30m each. Close coupled to a 20HP, 230 volts, 3-phase, 60Hz submersible motor. (For the purpose of transferring clear water from existing ground tank to 1500 cu.m. bolted ground tank)

One (1) set Motor Control Panel, suitable for the above three 20HP, 230 volts, 3-phase, 60hz motor, complete with the following:

Three (3) units VFD with phase converter for 20HP motor, 230V

Three (3) units Direct Online Bypass
One (1) unit Main Circuit Breaker, 250amps
Three (3) units Thermal Overload Relay, 45A-60A
Three (3) units Circuit Breaker, 75amps
One (1) set Programmable Logic Command with accessories
One (1) unit Human/Machine Interface, 7"
Two (2) units Level Transmitter, 0-12mts
One (1) unit Transient Voltage Surge Suppressor
One (1) set Lighting Arrester with Counter
One (1) lot Lighting Rod
210m Submersible Cable #6
One (1) unit Main Distribution Panel
One (1) unit Manual Transfer Switch
One (1) unit Power Meter

Fourteen (14) Lengths BI Casing, 10" dia.
Fourteen (14) Lengths BI Riser Pipes, 6" dia.
Three (3) units Butterfly Valve, 6" dia.
Three (3) units Rubber Coupling, 6" dia.
Three (3) units Elbow, 6" dia.
Three (3) units Elbow, 14" dia.
Three (3) units Well Seal
One (1) lot Foundation Support
One (1) lot Flanges, nipples, bolts and nuts

F.2 One (1) lot Labor and Materials for the Complete Electrical Lay-outing from entrance post to control panel to submersible motor

F.3 One (1) lot Labor and Materials for the Complete Mechanical Lay-outing and Installation

G. Interconnection Works
The tank should be interconnected to the existing feed and transmission lines and should include the supply of all necessary pipes, valves and fittings.

H. Construction of Pumphouse
Climate Proof Pumphouse and Control house as per standard approved design of the District.

I. Power Service Entrance Post
Design and Construction of electrical post/service entrance post.

Prepared by:

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Recommending Approval by:

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Technical Services Department Manager

Approved by:

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