

**REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
AQUINO ST., MANAOAG, PANGASINAN**

BIDDING DOCUMENTS

FOR THE

MANWAD

**DESIGN AND SUPPLY OF LABOR AND
MATERIALS for the CONSTRUCTION OF 600
CUBIC METERS GLASS FUSED TO STEEL
BOLTED RESERVOIR WITH COMPLETE
APPURTENANCES and TANK
FITTINGS/ACCESSORIES, ELECTRO-
MECHANICAL EQUIPMENT, CONSTANT
PRESSURE SYSTEM**

AT

BRGY. SAPANG, MANAOAG, PANGASINAN

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Infrastructure Projects (hereinafter referred to also as the “Works”) through Competitive Bidding have been prepared by the Government of the Philippines for use by all branches, agencies, departments, bureaus, offices, or instrumentalities of the government, including government-owned and/or -controlled corporations, government financial institutions, state universities and colleges, local government units, and autonomous regional government. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

The PBDs are intended as a model for admeasurements (unit prices or unit rates in a bill of quantities) types of contracts, which are the most common in Works contracting.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract; (ii) the eligibility requirements of Bidders; (iii) the expected contract duration; and (iv) the obligations, duties, and/or functions of the winning Bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Works to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

- a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

- d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.
- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.



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Glossary of Terms, Abbreviations, and Acronyms

ABC – Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

CDA – Cooperative Development Authority.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

Contractor – is a natural or juridical entity whose proposal was accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded. Contractor as used in these Bidding Documents may likewise refer to a supplier, distributor, manufacturer, or consultant.

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

Foreign-funded Procurement or Foreign-Assisted Project – Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

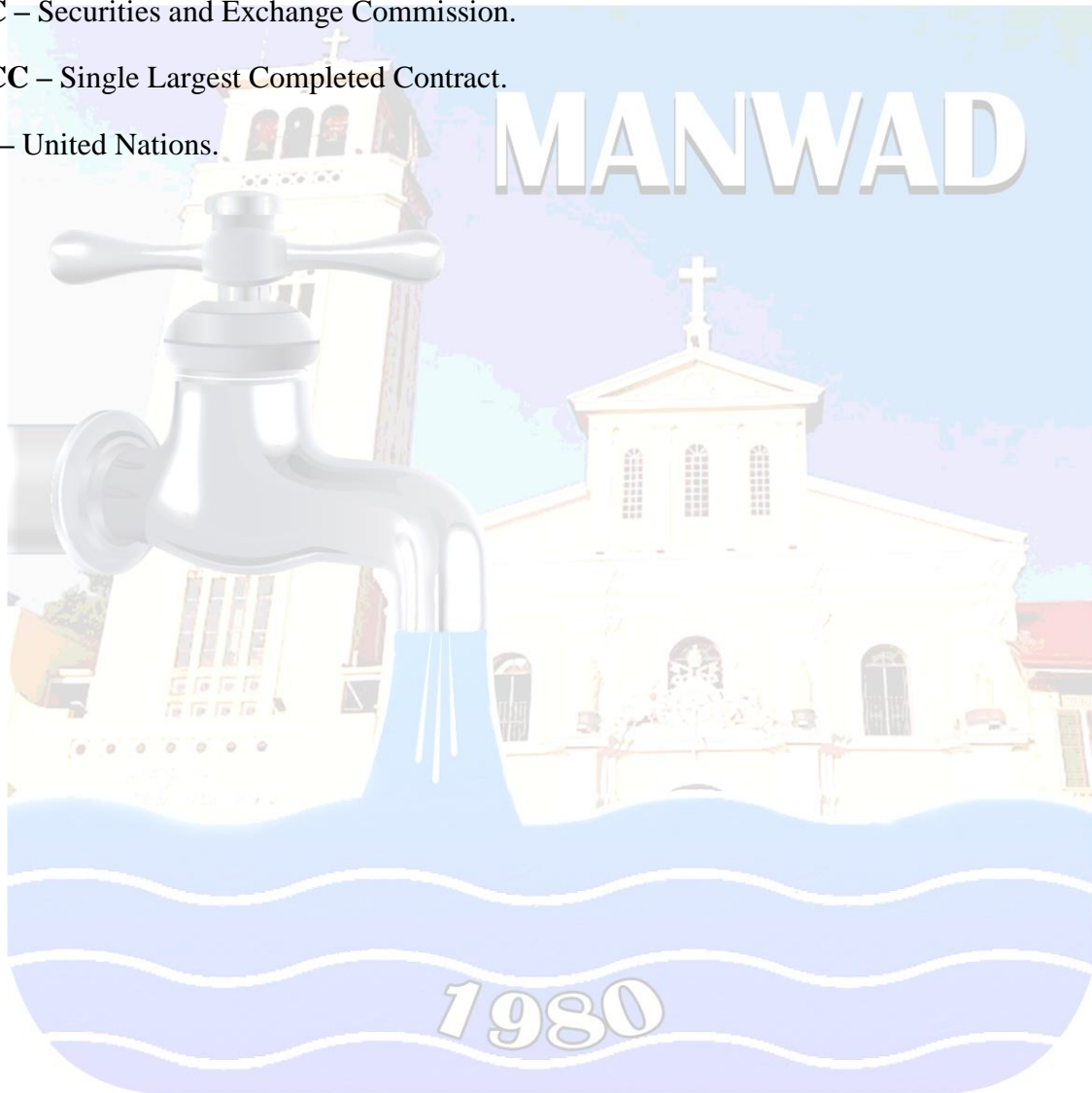
Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.



Section I. Invitation to Bid

Notes on the Invitation to Bid

The Invitation to Bid (IB) provides information that enables potential Bidders to decide whether to participate in the procurement at hand. The IB shall be posted in accordance with Section 21.2 of the 2016 revised IRR of RA No. 9184.

Apart from the essential items listed in the Bidding Documents, the IB should also indicate the following:

- a. The date of availability of the Bidding Documents, which shall be from the time the IB is first advertised/posted until the deadline for the submission and receipt of bids;
- b. The place where the Bidding Documents may be acquired or the website where it may be downloaded;
- c. The deadline for the submission and receipt of bids; and
- d. Any important bid evaluation criteria.

The IB should be incorporated into the Bidding Documents. The information contained in the IB must conform to the Bidding Documents and in particular to the relevant information in the Bid Data Sheet.

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INVITATION TO BID FOR THE DESIGN AND SUPPLY OF LABOR AND MATERIALS FOR THE CONSTRUCTION OF 600 CUBIC METERS GLASS FUSED TO STEEL BOLTED RESERVOIR WITH COMPLETE APPURTENANCES AND TANK FITTINGS/ACCESSORIES, ELECTRO-MECHANICAL EQUIPMENT, CONSTANT PRESSURE SYSTEM AT BRGY. SAPANG, MANAOAG, PANGASINAN

The Manaoag Water District, through the corporate budget for the contract approved by the governing Board, intends to apply the sum of **Fifteen million four hundred thousand pesos (Php 15,400,000.00)** being the Approved Budget for the Contract (ABC) to payments under the contract for the Design and Supply of Labor and Materials for the Construction of 600 Cubic Meters Glass Fused to Steel Bolted Reservoir with Complete Appurtenances and Tank Fittings/Accessories, Electro-mechanical Equipment, Constant Pressure System at Brgy. Sapang, Manaoag, Pangasinan. Bids received in excess of the ABC shall be automatically rejected at bid opening.

The Manaoag Water District now invites bids for the Design and Supply of Labor and Materials for the Construction of 600 Cubic Meters Glass Fused to Steel Bolted Reservoir with Complete Appurtenances and Tank Fittings/Accessories, Electro-mechanical Equipment, Constant Pressure System at Brgy. Sapang, Manaoag, Pangasinan. Completion of the Works is required on **August 16, 2023**. Bidders should have completed, within ninety (180) days from Notice to Proceed, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. Instructions to Bidders.

Bidding will be conducted through open competitive bidding procedures using non-discretionary pass/fail criterion as specified in the Implementing Rules and Regulations (IRR) of Republic Act 9184 (RA 9184), otherwise known as the "Government Procurement Reform Act".

Interested bidders may obtain further information from **Manaoag Water District Bids and Awards Committee (BAC)** and inspect the Bidding Documents at the address given below from 8:30am to 11:30am to 1:00pm to 4:00pm.

A complete set of Bidding Documents may be purchased by interested Bidders from the address below and upon payment of a non-refundable fee for the Bidding Documents in the amount of **Twenty-five thousand pesos (Php 25,000.00)**.

The Manaoag Water District Bids and Awards Committee will hold a Pre-Bid Conference at the address given below on **January 25, 2023 @ 9:00 a.m.**

Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below on or before **February 8, 2023 @ 11:00 am at Manaoag Water District office.** Late bids shall not be accepted.

All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 16.

Bid Opening shall be on **February 8, 2023 at 2:00pm** at Manaoag Water District. Bids and eligibility requirements will be opened in the presence of the bidders' representatives who choose to attend at the address below. Late bids shall not be accepted.

The Manaoag Water District reserves the right to accept or reject any bid, to annul the bidding process, and to reject all bids at any time prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

For further information, please refer to:

Manaoag Water District
Aquino St., Manaoag, Pangasinan
Tel. No.: (075) 529-0254
email address: manwad91280@yahoo.com

Prepared by:

CECILIA M. PINPIN
BAC- Secretariat

Noted by:

MS. MARLENE CONSTANCIA F. MANAOIS
Chairman, Bids and Awards Committee

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

This Section on the Instruction to Bidders (ITB) provides the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the Procuring Entity. It also provides information on bid submission, eligibility check, opening and evaluation of bids, post-qualification, and on the award of contract.



1. Scope of Bid

The Procuring Entity, Manaoag Water District invites Bids for the Design and Supply of Labor and Materials for the Construction of 600 cubic meters Glass Fused to Steel Bolted Reservoir with Complete Appurtenances, Tank Fittings/Accessories, Electro-Mechanical Equipment, Constant Pressure System at Brgy. Sapang, Manaoag, Pangasinan, with Project Identification Number 9415305.

The Procurement Project (referred to herein as “Project”) is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for the year 2023 in the amount of Fifteen Million Four Hundred Thousand Pesos (P15,400,000.00).

2.2. The source of funding is:

GOCC and GFIs, the proposed Corporate Operating Budget.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manual and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or invitation to bid by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have inspected the site, determined the general characteristics of the contracted Works and the conditions for this Project, such as the location and the nature of the work; (b) climatic conditions; (c) transportation facilities; (c) nature and condition of the terrain, geological conditions at the site communication facilities, requirements, location and availability of construction aggregates and other materials, labor, water, electric power and access roads; and (d) other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and

obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA’s CPI, except under conditions provided for in Section 23.4.2.4 of the 2016 revised IRR of RA No. 9184.

A contract is considered to be “similar” to the contract to be bid if it has the major categories of work stated in the **BDS**.

5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

There is no restriction on the origin of Goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN.

7. Subcontracts

7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.

The Procuring Entity has prescribed that:

Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed fifty percent (50%) of the contracted Works.

7.1. The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterial stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

- 7.2. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.
- 7.3. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents Comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this

Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.

10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.

10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

Bidders shall submit offers that comply with the requirements of the Bidding Documents, including the basic technical design as indicated in the drawings and specifications. Unless there is a value engineering clause in the **BDS**, alternative Bids shall not be accepted.

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

14.1. Bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies shall be converted to

Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

14.2. Payment of the contract price shall be made in:

Philippine Pesos.

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until **June 7, 2023**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

- 18.2. The preliminary examination of Bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

- 19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 16 shall be submitted for each contract (lot) separately.
- 19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Notes on the Bid Data Sheet (BDS)

The Bid Data Sheet (BDS) consists of provisions that supplement, amend, or specify in detail, information, or requirements included in the ITB found in Section II, which are specific to each procurement.

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in the ITB and has to be prepared for each specific procurement.

The Procuring Entity should specify in the BDS information and requirements specific to the circumstances of the Procuring Entity, the processing of the procurement, and the bid evaluation criteria that will apply to the Bids. In preparing the BDS, the following aspects should be checked:

- a. Information that specifies and complements provisions of the ITB must be incorporated.
- b. Amendments and/or supplements, if any, to provisions of the ITB as necessitated by the circumstances of the specific procurement, must also be incorporated.

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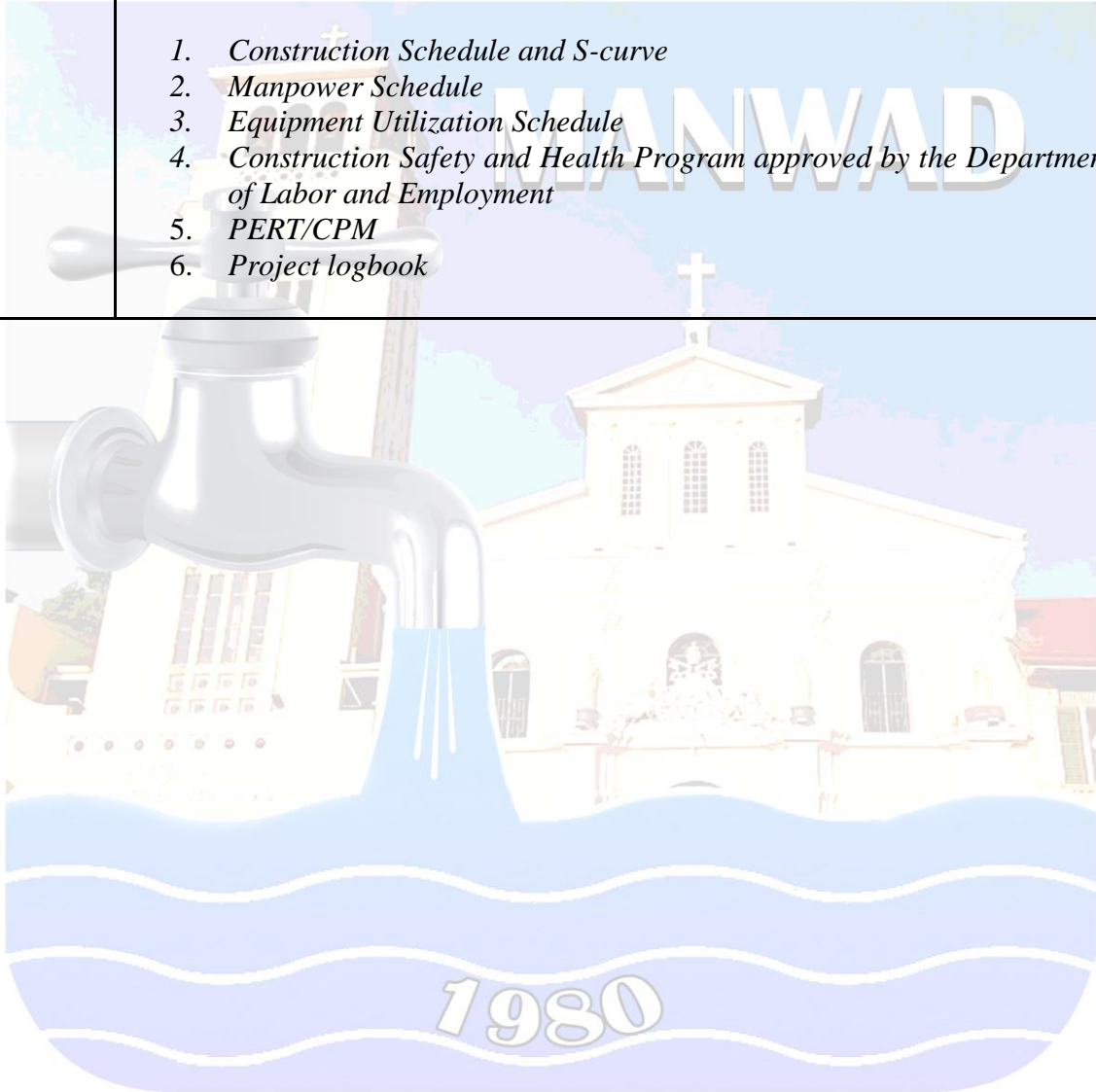
Bid Data Sheet

ITB Clause	
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: “ <u>Design and build contract</u> ” for water supply facilities and related works.
7.1	Subcontracting is allowed for the <u>design portion</u> of the “Design and Build” contract. The Designer/Engineering Firm should have at least designed a similar project equivalent to 50% of the cost of ABC.
10.3	<p>PCAB CONTRACTOR’S LICENSE</p> <p>LICENSE PARTICULARS: Principal Classification: General Engineering Other Classification: Water Supply Category (Minimum Requirement):</p> <p>REGISTRATION PARTICULARS: Kind of Project: Reservoir Respective Size Range: SMALL B</p>
10.4	<p>The Bidder shall submit Preliminary Conceptual Design Plans for the Steel Welded Tank (both hard print and electronic/soft copy) the degree of details as provided here:</p> <ol style="list-style-type: none"> a. Site Development Plan with Vicinity Map (also reflect the existing structures, pipe layout, drainage layout, access roads other necessary information) b. Fully Rendered Exterior Perspective at least 2 views showing inlet/outlet and overflow valve box (colored), and the control room c. Tank Details <ol style="list-style-type: none"> 1. Tank Layout with Dimensions 2. Tank profiles along inlet/outlet line and along drainage/overflow line 3. Inlet and outlet pipe details (fill and draw operation) 4. Valve Box Details 5. Access Doors/Manways and Hatch details including Roof/Air Ventilation 6. Water Level Indicator System Details including water level relay (ultrasonic and mechanical water level indicator) 7. Miscellaneous Details 8. Cathodic Protection Details d. Foundation Details with Dimensions e. Control Room Details, Sections, Dimensions f. Site Drainage, Pipelaying and Road Details

10.5	<p>The minimum major equipment requirements are the following:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Equipment</u></th> <th style="text-align: center;"><u>Capacity</u></th> <th style="text-align: center;"><u>Number of Units</u></th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>																														
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	Bulldozer		
	Wheel Loader		
	Dump Truck		
	Static Roller	5-10 Tons	1
	Water Truck	5,000-6,000 Liters	1
	Stake Truck, Elf (or equal)	7 Tons	1
	Service Vehicles	4x4 pick up	2
	Surveying Instrument		1
	Concrete Mixer	1 or 2 baggers	2
	Vibratory Compactor	4-8 Tons	2
	Concrete Vibrator	30mm diameter	2
	Hydraulic Jack hammer		1
	Bar cutter		2
	Welding Machine		2
	Compressor		1
	Mechanical Tool Set		2
	Portable Concrete Drill Set		2
	Mobile Generator Set	120 KVA	1
	Welding Set/Oxy-Acetylene Set		2
	Note: List of contractor's personnel <u>shall be submitted under oath and notarized.</u>		
12	No further instructions.		
15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less than P308,000.00 (2% of ABC), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</p> <p>b. The amount of not less than P770,000.00 (5% of ABC) if bid security is in Surety Bond.</p>		
19.2	Partial bid is not allowed. The infrastructure project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.		
20	<p>Only tax returns filed, and taxes paid through the Electronic Filing and Payments System (EFPS) shall be accepted.</p> <p><i>NOTE: The latest income and business tax returns are those within the last six months preceding the date of bid submission.</i></p>		

21	<p>Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, and other acceptable tools of project scheduling.</p> <p>The following additional contract documents relevant to the Project are required:</p> <ol style="list-style-type: none">1. <i>Construction Schedule and S-curve</i>2. <i>Manpower Schedule</i>3. <i>Equipment Utilization Schedule</i>4. <i>Construction Safety and Health Program approved by the Department of Labor and Employment</i>5. <i>PERT/CPM</i>6. <i>Project logbook</i>
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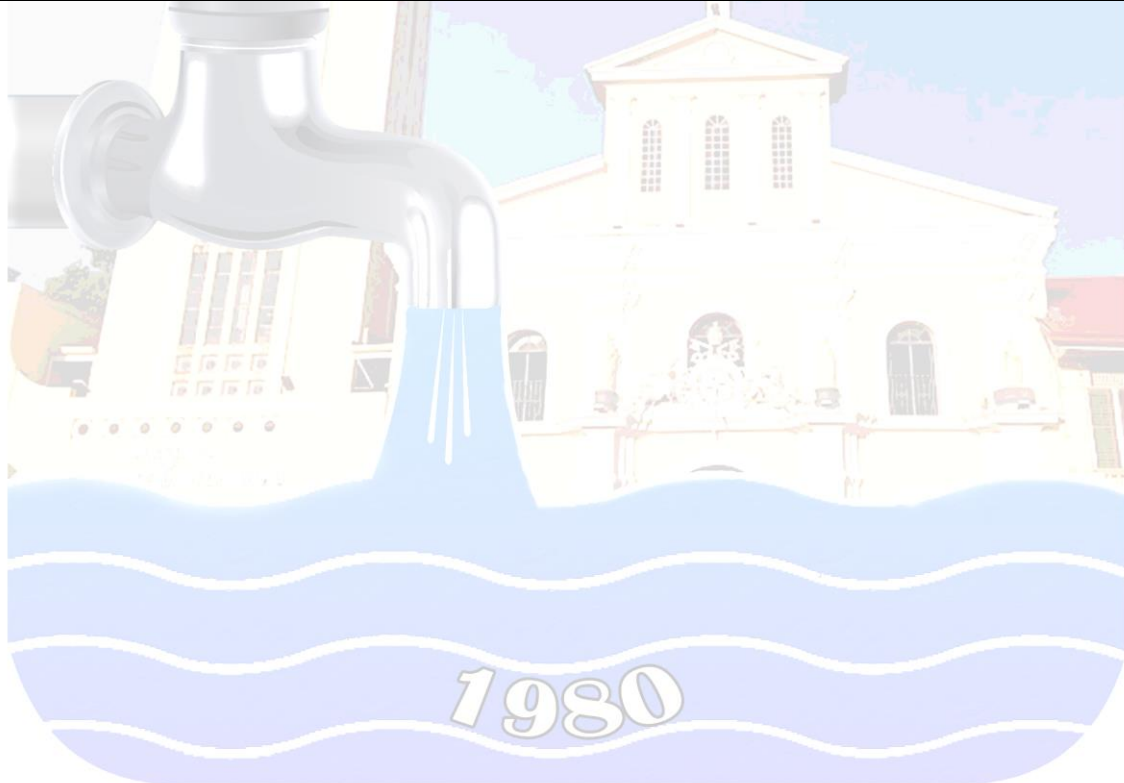
Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

The General Conditions of Contract (GCC) in this Section, read in conjunction with the Special Conditions of Contract in Section V and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

Matters governing performance of the Contractor, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are included in the GCC and Special Conditions of Contract.

Any complementary information, which may be needed, shall be introduced only through the Special Conditions of Contract.



1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

2. Sectional Completion of Works

If sectional completion is specified in the **Special Conditions of Contract (SCC)**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date shall apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Possession of Site

4.1. The Procuring Entity shall give possession of all or parts of the Site to the Contractor based on the schedule of delivery indicated in the **SCC**, which corresponds to the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the Procuring Entity to give possession in accordance with the terms of this clause, the Procuring Entity's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by Procuring Entity.

4.2. If possession of a portion is not given by the above date, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay may be addressed through contract extension provided under Annex "E" of the 2016 revised IRR of RA No. 9184.

4. The Contractor's Obligations

The Contractor shall employ the key personnel named in the Schedule of Key Personnel indicating their designation, in accordance with **ITB** Clause 10.3 and specified in the **BDS**, to carry out the supervision of the Works.

The Procuring Entity will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.

5. Performance Security

5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.

5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

6. Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the SCC supplemented by any information obtained by the Contractor.

7. Warranty

7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.

7.2. The warranty against Structural Defects/Failures, except that occasioned-on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the SCC.

8. Liability of the Contractor

Subject to additional provisions, if any, set forth in the SCC, the Contractor's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Contractor is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

9. Termination for Other Causes

Contract termination shall be initiated in case it is determined *prima facie* by the Procuring Entity that the Contractor has engaged, before, or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to corrupt, fraudulent, collusive, coercive, and obstructive practices as stated in **ITB** Clause 4.

10. Dayworks

Subject to the guidelines on Variation Order in Annex “E” of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the Dayworks rates in the Contractor’s Bid shall be used for small additional amounts of work only when the Procuring Entity’s Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity’s Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the **SCC**.

11.2. The Contractor shall submit to the Procuring Entity’s Representative for approval an updated Program of Work at intervals no longer than the period stated in the **SCC**. If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity’s Representative may withhold the amount stated in the **SCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections and Audits

The Contractor shall permit the GOP or the Procuring Entity to inspect the Contractor’s accounts and records relating to the performance of the Contractor and to have them audited by auditors of the GOP or the Procuring Entity, as may be required.

13. Advance Payment

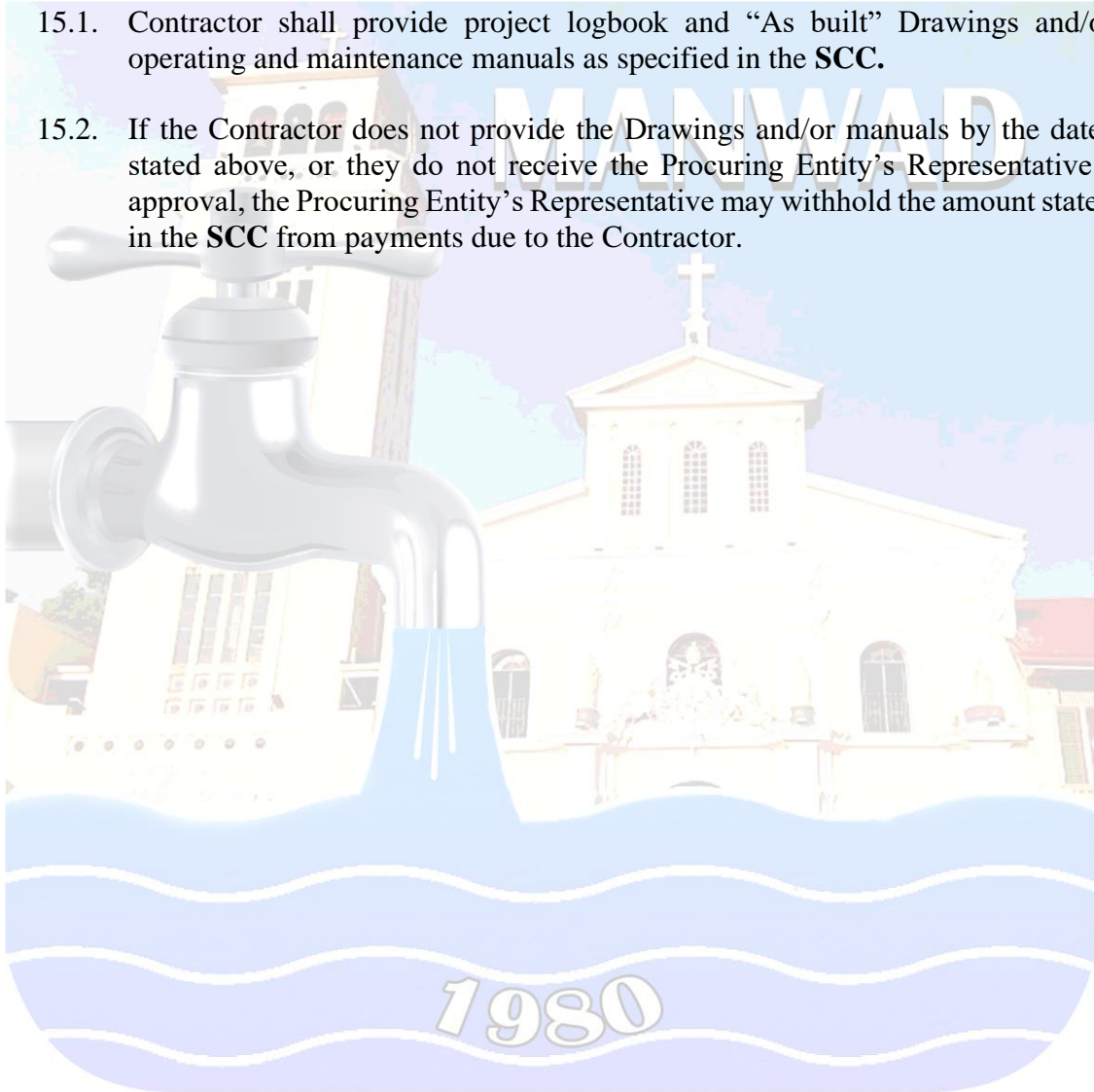
The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the **SCC**, subject to the requirements in Annex “E” of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

The Contractor may submit a request for payment for Work accomplished. Such requests for payment shall be verified and certified by the Procuring Entity's Representative/Project Engineer. Except as otherwise stipulated in the **SCC**, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

15. Operating and Maintenance Manuals

- 15.1. Contractor shall provide project logbook and "As built" Drawings and/or operating and maintenance manuals as specified in the **SCC**.
- 15.2. If the Contractor does not provide the Drawings and/or manuals by the dates stated above, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from payments due to the Contractor.



Section V. Special Conditions of Contract

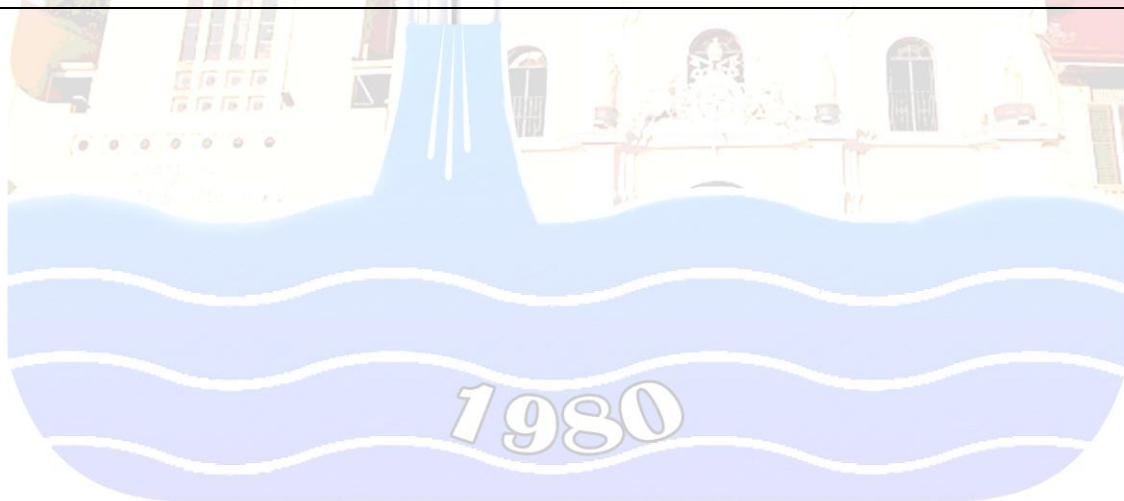
Notes on the Special Conditions of Contract

Similar to the BDS, the clauses in this Section are intended to assist the Procuring Entity in providing contract-specific information in relation to corresponding clauses in the GCC found in Section IV.

The Special Conditions of Contract (SCC) complement the GCC, specifying contractual requirements linked to the special circumstances of the Procuring Entity, the Procuring Entity's country, the sector, and the Works procured. In preparing this Section, the following aspects should be checked:

- a. Information that complements provisions of the GCC must be incorporated.
- b. Amendments and/or supplements to provisions of the GCC as necessitated by the circumstances of the specific purchase, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of the GCC should be incorporated herein.



Special Conditions of Contract

GCC Clause	
2	The Intended Completion Date is on August 16, 2023, One Hundred Eighty Days (180) Calendar Days upon receipt of the formal Notice to Proceed.
4.1	The Procuring Entity shall give possession of all parts of the Site to the Contractor upon issuance of Notice to Proceed.
6	None
7.2	Five (5) years.
10	No dayworks are applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within Ten (10) days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is 15% of the Contract Price/Amount.
13	The amount of the advance payment is fifteen percent (15%) of contract price, recoupment of which shall be deducted from the Contractor's monthly billing (amount of advance payment multiply by % work accomplished).
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
15.1	The project logbook, "As built" drawings and operating and maintenance manuals shall be submitted within thirty (30) days after the issuance of the Certificate of Final Acceptance/Project Completion.
15.2	Final Progress Payment will be withheld for failing to produce "As built" drawings and/or operating and maintenance manual.

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Section VI. Specifications

Notes on Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying or conditioning their Bids. In the context of international competitive bidding, the specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency, and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is mandatory. Most specifications are normally written specially by the Procuring Entity or its representative to suit the Works at hand. There is no standard set of Specifications for universal application in all sectors in all regions, but there are established principles and practices, which are reflected in these PBDs.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, ports, railways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, although not necessarily to be used in a particular Works Contract. Deletions or addenda should then adapt the General Specifications to the particular Works.

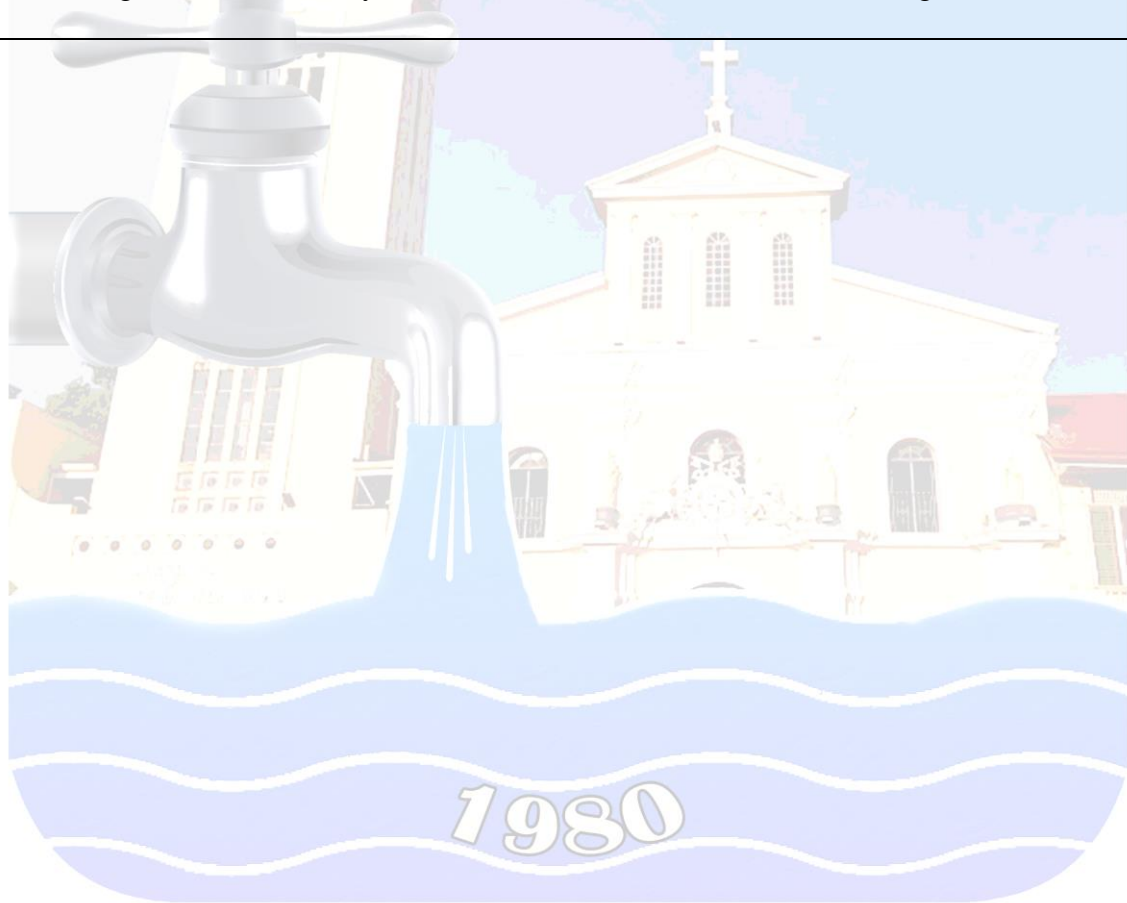
Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the SCC.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the

latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Procuring Entity's Representative's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Procuring Entity's Representative at least twenty-eight (28) days prior to the date when the Contractor desires the Procuring Entity's Representative's consent. In the event the Procuring Entity's Representative determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

These notes are intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final Bidding Documents.



TERMS OF REFERENCE (TOR)

Procurement and Implementation of the
Infrastructure Project for the

DESIGN AND SUPPLY OF LABOR AND MATERIALS for the CONSTRUCTION OF 600 CUBIC METERS GLASS FUSED TO STEEL BOLTED RESERVOIR WITH COMPLETE APPURTENANCES and TANK FITTINGS/ ACCESSORIES, ELECTRO-MECHANICAL EQUIPMENT, CONSTANT PRESSURE SYSTEM FOR MANAOAG WATER DISTRICT

I. BACKGROUND

The Manaoag Water District (MANWAD) is seeking a suitable qualified candidate or firm to carry out the contract for the “DESIGN AND SUPPLY OF LABOR AND MATERIALS FOR THE CONSTRUCTION OF 600 CUBIC METERS GLASS FUSED TO STEEL BOLTED RESERVOIR WITH COMPLETE APPURTENANCES AND TANK FITTINGS/ACCESSORIES, ELECTRO-MECHANICAL EQUIPMENT, CONSTANT PRESSURE SYSTEM.” utilizing the most appropriate method and technology.

The contractual arrangement to be used for this project is Design-and-Build Schemes (DBS). MANWAD intends to apply the sum of ***Fifteen Million Four Hundred Thousand pesos*** (15,400,000.00) being the Approved Budget Contract (ABC) with an intended completion duration of One Hundred Eighty (180) Calendar Days upon receipt of the Notice to Proceed.

II. METHODOLOGY

- (a) Implement the project taking into consideration the communities and their landscape, and achieve enhanced environmental performance and comprehensive environmental compliance.
- (b) Stimulate the local economy by maximizing local business participation in implementing the project.
- (c) Maximize use of minority or local business enterprise.
- (d) Gender perspective

- (e) Engage communities and stakeholders to proactively participate in the project from planning stage up to implementation/construction stage.
- (f) Develop and implement an effective Quality Program.
- (g) Achieve swift commencement and timely completion of the project.
- (h) Provide cost-effective solutions and cost-containment methodologies
- (i) Increase Work Zone safety with engineering improvements and enhanced awareness through public information
- (j) Minimize life-cycle cost of the project.
- (k) Any additional project goals will be included in the Special Provisions.

Main Responsibilities of the Contractor – The Contractor shall be responsible for furnishing all labor, material, plant, equipment, services and support facilities for the following:

- (a) Design and Construction of structures in the Project components including utility relocations.
- (b) Project construction management including Health and Safety Measures as stated in Department of Public Works and Highways (DPWH) Order No. 39 “Revised Construction Guidelines for the Implementation of Infrastructure Projects during the COVID-19 Public Health Crises”.
- (c) Project-related Public Information activities.
- (d) Coordination with Project stakeholders, Barangay/LGU, other contractors, and utility owners.
- (e) Design Quality of temporary structures.
- (f) Construction Quality and Workmanship
- (g) Environmental permitting, resource agency consultations, mitigation and compliance monitoring.
- (h) Additional environmental investigations, documentations, and monitoring associated with or resulting from Contractor’s actions.
- (i) Maintenance and protection of traffic and access to properties (both temporary and permanent access).
- (j) Project safety and security.
- (k) Preliminary Engineering (PE), such as surveys and geotechnical investigations and alike
- (l) Harmful and hazardous materials remediation (design and construction)
- (m) Drainage and erosion control.
- (n) Construction waste disposal and handling.
- (o) Acquisition of required clearances, licenses, construction easements, and permits for the construction work, work sites, and storage areas, on or off site.

- (p) Ancillary Work, such as access roads, driveways, temporary fencing, relocation of drainage, work sites, and temporary works.
- (q) Location, acquisition, permits, and transportation for material.
- (r) Coordination and relocation of utilities and municipal drainage facilities (when required).
- (s) Site clearance and restoration.
- (t) Administration of the project during the contract period.
- (u) Implementation and administration of LWUA/MANWAD policy for construction work, as applicable. The Contractor will be required to plan, implement, and maintain a Quality Plan for the Work. The quality plan will detail how the Contractor will establish and operate its quality program management structure, independent from design and construction production, and document its procedures pertaining to all aspects of the work listed below. The quality plan will be established and maintained by the Contractor such that it provides an agency-auditable system that assures the Contractor complies with all contract requirements pertaining to the general areas of the construction work.

MINIMUM TEAM COMPOSITION / MANPOWER NETWORK:

DESIGN TEAM	Number	Years of Experience
Project Manager	1	3
Project Design Engineer (Civil/Structural)	1	3
Project Engineer (Electro/Mechanical)	1	3
Engineering Assistant/Draftsman	1	3

CONSTRUCTION TEAM	Number	Years of Experience
Project Manager	1	3
Project Engineer (Civil works)	1	3
Project Engineer (Electro/Mechanical)	1	3
Materials Engineer	1	3
Environment, Health and Safety Officer	3	3

III. PROJECT DESCRIPTION

This Project is a “*Design and Build*” Scheme contract and is a fixed lump sum cost and changes or variation orders will only be allowed if the changes in the design and construction

requirements were not anticipated in the preparation of contract documents prior to contract signing and approval. The following guidelines shall govern in the approval for changes or variation orders for work items under the DBS (Ref. Annex” G” of the revised 2016 IRR of R.A. 9184):

This Design and Build Contract includes submission of site investigation reports, preparation of structural computation/analysis, preparation of detailed construction drawings/plans and submission of As-Built Plans. Contract Implementation for the Design and Build Scheme:

Contract Implementation for the Design and Build Scheme:

As a rule, contract implementation guidelines for the procurement of infrastructure projects shall comply with Annex “E” of the IRR of RA 9184, *as amended*. The following provisions shall supplement the procedures specified in Annex “E”.

1. No works shall commence unless the contractor has submitted the required documentary requirements and the procuring entity has given written approval. Work execution shall be in accordance with reviewed and approved documents.
2. The contractor shall be responsible for obtaining all necessary information as to risks, contingencies which may affect the works and shall prepare and submit all necessary documents specified by the procuring entity to meet all regulatory approvals as specified in the contract documents.
3. The contractor shall submit a detailed program of work within TEN (10) calendar days after issuance of the Notice to Proceed (NTP) for approval by the procuring entity that shall include, among others:
 - a. The order in which it intends to carry out the work including anticipated timing for each stage of design/detailed engineering and construction;
 - b. Periods for review of specific outputs and any other submissions and approvals;
 - c. Sequence of timing for inspections and tests as specified in the contract documents;
 - d. General description of the design and construction methods to be adopted;
 - e. Number and names of personnel to be assigned for each stage of the work;
 - f. List of equipment required on site for each major stage of the work;
 - g. Description of the quality control system to be utilized for the project.

4. Any errors, omissions, inconsistencies, inadequacies or failure submitted by the contractor that do not comply with the requirements shall be rectified, resubmitted and reviewed at the contractor's cost. If the Contractor wishes to modify any design or documents which has been previously submitted, reviewed and approved, the contractor shall notify the procuring entity within a reasonable period of time and shall shoulder the cost of such changes.
5. As a rule, changes in **design and construction requirements** shall be limited only to those that have not been anticipated in the contract documents prior to contract signing and approval. The following guidelines shall govern approval for change or variation orders:
 - a. Change Orders resulting from design errors, omissions or non-conformance with the parameters and the contract documents by the contractor shall be implemented by the contractor at no additional cost to the procuring entity.
 - b. Provided that contractor suffers delay and/or incur costs due to changes or errors in the procuring entity's performance specifications and parameters, he shall be entitled to either one of the following:
 - i. an extension of time for any such delays under Section 10 of Annex "E"; or
 - ii. payment for such costs as specified in the contract documents, provided, the cumulative amount of the variation order does not exceed ten percent (10%) of the original contract price.
6. The contract documents shall include the manner and schedule of payment specifying the estimated contract amount and instalments in which the contract price will be paid.
7. The contractor shall be entitled to advance payment subject to the provisions of Section 4 of Annex "E".
8. The procuring entity shall define the quality control procedures for the design and construction in accordance with agency guidelines and shall issue the proper certificates of acceptance for sections of the works or the whole of the works as provided for in the contract documents.
9. The contractor shall provide all necessary equipment, personnel, instruments, documents and others to carry out specified tests.
10. All **design and builds projects** shall have a minimum Defects Liability Period of one (1) year after contract completion or as provided for in the contract documents. This is without prejudice, however, to the liabilities imposed upon the engineer/architect who

drew up the plans and specification for a building sanctioned under Section 1723 of the New Civil Code of the Philippines.

11. The contractor shall be held liable for design and structural defects and/or failure of the completed project within the warranty periods specified in Section 62.2.3.2 of the IRR.

The project shall cover the detailed design, supply and construction of a 600 cubic meters usable capacity glass fused to steel reservoir pursuant to the contract drawings, technical specifications and Terms of Reference enclosed herein.

The Facility will be located within Brgy. Sapang, Manaoag, Pangasinan. Infrastructure components are intended to interconnect with existing deep wells and pipe system.

Provision for interconnection and by-pass connection to the existing deep wells and to distribution system have been carried out wherein the proposed ground reservoir will operate in support of the existing deep wells, specifically for concessionaires of Brgy. Sapang and nearby areas.

The acquisition and payment of all building and excavation permits, clearances and all other permit necessary in the project implementation shall be the responsibility of the contractor. The Manaoag Water District shall provide all assistance whenever necessary.

IV. CONCEPTUAL DESIGN / SPECIFICATIONS / PARAMETERS / OTHER REQUIREMENTS

A. SCOPE

1. Contractor shall conduct soil investigation to determine the soil bearing capacity of the site as guide in the design of the reservoir and the ring wall foundation.
2. Tank footing design shall be based on the soil bearing capacity in which no case shall the specified bearing pressure exceed the soil bearing capacity that would cause intolerable settlements and impair the structural integrity of the tank.
3. Contractor shall prepare and submit Structural/Design Analysis of the reservoir. All designs shall be based on the latest edition of the National Structural Code of the Philippines.

4. The tank shell shall be made of glass fused to steel with thickness commensurate to bear the load capacity and other factors and appropriate concrete foundation.
5. The ground reservoir shall have the following features:
 - a. Manhole/Access Hatch Way w/ cover & lockable hatch
 - b. Inlet and Outlet pipes including controlling valves
 - c. Overflow with screen and flap cover and Drain pipes including valves
 - d. Underdrain system (for foundation), if necessary.
 - e. Air Vents with screen
 - f. Mechanical Water Level Indicator (Aluminum)
 - g. Roof hand rails connecting the ladder, manhole, and vent
 - h. Access Ladders (Inside & Outside).
 - Roof Openings/Holes including furnishing and installation of vertical stainless-steel ladder (Inside).
 - Galvanized Steel Staircase along tank wall with railing and platform (outside)
 - i. 200mm Float Valve & Accessories.
 - j. Nameplate bearing the MANWAD Official logo and Name, tank diameter and height, and maximum design capacity, date constructed. The nameplate shall be affixed to the tank exterior sidewall location approximately 2 meters from the grade elevation.
 - k. Concrete Valve Boxes
 - l. Flushing box with drainage capability
6. Standard Requirement for the Glass Fused to Steel Ground Reservoir
 - a. Tank shell shall be glass fused to steel
 - b. Designed to store “Clean & Potable” Water
 - c. Should be durable, long life
 - d. Stable Construction
 - e. Non-Leakage

B. DESIGN CRITERIA AND PARAMETERS:

1. Standard Design Codes and References

The following standard codes and references shall be used where applicable.

- a) American Concrete Institute (ACI) Standards

- ACI 318 - Building code requirements for reinforced concrete structures
- ACI 315 - Manual of standard practice for details and detailing of concrete reinforcement
- ACI 350 - Environmental Engineering Concrete Structures

- b) Structural Design Manual Specifications
- c) National Structural Code of the Philippines (NSCP)
- d) Philippine National Standards (PNS)
- e) American Society of Testing and Materials (ASTM)
- f) Uniform Building Code (UBC)
- g) Steel Construction Manual (AISC)
- h) Portland Cement Association (PCA) Concrete Information
- i) American National Standard Institute (ANSI)
- j) American Water Works Association (AWWA) Standards

- ANSI/AWWA D100-96 - Welded Steel Tanks for Water Storage
- AWWA Manual M42 - Steel Water Storage Tanks

2. **Design Load**

- a) Dead Load (DL)
 - Concrete 24 KN/m³ (150 pcf)
 - Steel 78 KN/m³ (490 pcf)
 - Water 9.81 KN/m³ (62.4 pcf)
- b) Live Load (LL) **1980**
Roof with slope 1.44 KN/m²

c) Wind Load (WL)

Wind load shall be considered in the design in accordance with NSCP. Wind shall be assumed to come from any horizontal direction. No reduction in wind pressure shall be taken for the shielding effect of adjacent structures.

where: $P = c_e c_q q_s I$

P = design wind pressure, kPa

For areas located along the typhoon belt:

$$P = 300 \text{ kph (minimum)}$$

c_e = combined height, exposure and gust factor coefficient

= pressure coefficient for the structure or portion of c_q structure under consideration

q_s = wind stagnation pressure at a height of 10 meters

I = importance factor as set forth by occupancy category

d) Earthquake Load (EL)

Design base shear (in accordance with NSCP)

$$V = \frac{ZICRW}{s} W$$

Where:

Z = Seismic zone factor

I = Importance factor based on standard occupancy

R = Numerical coefficient based on global ductility capacity of lateral force-resisting frame

W = the total seismic dead load

C = numerical coefficient as determined from the formula
 $= \frac{1.252}{3} s \leq 2.75$

t

s = site coefficient for the given soil characteristics

t = fundamental period of vibration, in seconds, of the structure for the direction under consideration

$$= c_t (h_n)^{3/4}$$

$c_t = 0.050$ (for all buildings as set forth by NSCP)

h_n = Height above the base to level n in meters

Seismic provisions of UBC 97 Edition shall also be verified for ground motion producing structural response and forces at any horizontal direction.

Basic allowable stresses are increased by 33% for combined DL+LL+EL OR DL+LL+WL whichever is greater wall design.

e) Hydrostatic and Hydrodynamic Loads

All hydraulic structures shall be designed for hydrostatic forces imposed by the fluid contained in these structures. All hydraulic structures shall be designed for hydrodynamic forces using the ground acceleration and the response spectra provided by the geotechnical report.

f) Loadings shall be calculated for different conditions. As a minimum, the following load combinations shall be determined:

Tank full: Hydrostatic loading plus dead load, or hydrodynamic loading plus seismic forces due to dead loads, or hydrodynamic loading plus seismic forces due to dead loads plus live load.

Tank Empty: Static soil pressure (active or at rest) plus dead load or seismic soil pressure plus seismic forces due to dead loads plus permanent surcharge.

3. **Minimum Material Strength**

a) Concrete, f_c' 21 MPa (3,000 psi) or as specified. Minimum 28-day compressive cylinder strength for structural elements, including slabs on grade.

b) Reinforced Steel, f_y

for 12mm and smaller	276 MPa (40,000 psi)
for 16mm and larger	414 MPa (60,000 psi)

c) Steel and Miscellaneous Metal Works

Structural shapes, f_y (open or non-tubular)	248.2 MPa (36,000 psi)
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Shop and field welding, f_y shall be in accordance with AWS A 5.1 or a 5.5 (E 70xx Series)	485 MPa (70,000 psi)
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Anchor bolts shall, ft conform to
ASTM A 307

138 MPa (20,000 psi)

Tension rods, fy shall be structural
steel conforming to ASTM A 40

276 MPa (40,000 psi)

4. Allowable Stresses in Concrete

a) Flexure, fc

Extreme fiber stress in compression $0.45 f_c'$

Extreme fiber stress in tension $1.60 (f_c')^{1/2}$

b) Shear, v

As a measure of diagonal tension at a distance from the face of support

Beams with no web reinforcement $1.10 (f_c')^{1/2}$

Joists with no web reinforcement $1.20 (f_c')^{1/2}$

Members with web reinforcement $5.00 (f_c')^{1/2}$

Slabs and Footings $2.00 (f_c')^{1/2}$

c) Bearing

On full area $0.25 (f_c')^{1/2}$

On one-third area or less $0.375 (f_c')^{1/2}$

16 mm \emptyset bars and smaller 40 mm (1 1/2")

20 mm \emptyset bars and higher 50 mm (2")

d) Columns and Pedestal

Exposed to Earth, Water, Sewage or Weather

Stirrups & Ties 50 mm (2")

Principal Reinforcement 60 mm (2 1/2")

e) Walls

Formed concrete surfaces exposed to earth, water, sewage, weather or in contact with ground 50 mm (2")

f) Footings, Tie Beams and Base Slabs

At formed surfaces and bottoms bearing on concrete work mat 50 mm (2")

C. TECHNICAL STANDARDS FOR GLASS FUSED TO STEEL TANKS

Treated Water Tank

The treated water tank shall be above ground and shall be designed to withstand pressures and seismic loading in accordance with the National Structural Code of the Philippines (NSCP 2015).

The Treated Water Tank shall be sized to store a total of six hundred (600) cubic meters net volume of treated water, equipped with localized water level indicator for monitoring and recording system. The tank shall be water-tight tank and leak-free.

The said tanks shall be glass-fused-to-steel bolted tanks considering AWWA and/or EN-ISO standards at the minimum, for water storage tanks.

1. QUALIFICATIONS OF TANK SUPPLIER

- 1.1 The Bidder shall offer new tank structures as supplied from a Manufacturer specializing in the design, fabrication and erection of factory applied Glass-Fused-to-Steel Bolted sectional tanks. The Manufacturer shall own and operate its own production plant; able to design, fabricate and supply Glass-Fused-to-Steel tank sheets in one location so as to provide full quality control and responsibility over the product.

The Bidder shall provide an Authorization from the Manufacturer or its Local Distributor a Certificate of Distributorship to ensure that the proposed tank came directly from the tank manufacturer as compliance to section 1.1.1. Such document should be authenticated by the Philippine Consul or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.

The Bidder shall also provide the Manufacturer's Certificate of Registration to Quality Management System – ISO 9001:2015 to ensure compliance to section 1.1.2. Such document should be authenticated by the Philippine Consul or the Office of the Local Chamber of Commerce within the manufacturer's country of origin.

1.2 Evaluation

- 1.2.1 The End-user shall fully consider the lifetime cost implications of the diverse range of tank sheet coatings and finishes available and reserves the right to evaluate all bids based on an internationally approved lifetime cost analysis.
- 1.2.2 As a minimum, the End-user have considered such cost implications over a 25-year operational period.
- 1.2.3 The End-used will add all such costs, depending upon the type of tank offered, to the Bidder's bid price to determine the effective low bid for purposes of making the award.

1.3 Submittal Drawings

- 1.3.1 Construction shall be governed by the Owner's plans and specifications showing general dimensions and construction details. All submittal drawings prepared by the Bidder and their corresponding Manufacturer shall be subject to the End-User's approval.
- 1.3.2 There shall be no deviation from these drawings and specifications except upon written order or approval from the End-User.
- 1.3.3 Submittal drawings shall show the following as a minimum:
1. Dimensions, color, description of materials and other pertinent information.
 2. Joint and foundation attachment details.
 3. Tank assembly (general arrangement drawing) with positions of appurtenances.
 4. Details of appurtenances.
 5. Roof details (if applicable).
- 1.3.4 The Bidder is required to furnish, for the review and approval by the End-user, two sets of construction drawings for all work not shown in complete detail on the drawings submitted during the bidding.

When approved, one set of drawings will be returned to the Bidder marked "APPROVED FOR CONSTRUCTION" and these drawings will then govern the scope of work detailed thereon. The approval by the End-user of the tank manufacturer's drawings shall only be on their general

conformity with the bidding drawings and specifications and shall not guarantee detailed dimensions and quantities, which remain as the Bidder's responsibility.

1.4 Other Qualifications

1.4.1 The bidder shall provide a certification of no pending works signed by Manaoag Water District. This is to ensure the bidder's conformity to the project schedule and has not encountered any preventable delays from past projects of Manaoag Water District.

A. **GLASS-FUSED-TO-STEEL BOLTED SECTIONAL TANK; INCLUDING FOUNDATION, TANK COVER, TANK STRUCTURE AND APPURTENANCES AS SHOWN ON THE ENGINEER'S DRAWINGS AND DESCRIBED HEREIN.**

I. Design Criteria

a. Design Standards

- i. The tank plate/sheet materials, design, fabrication and erection of the sectional tank shall conform to standard ISO 28765:2008 'Vitreous and porcelain enamels Design of bolted steel tanks for the storage or treatment of water or municipal or industrial effluent and sludges'

The bidder's represented manufacturer should provide Certificate of Conformity to ISO 28765:2015 – Vitreous and Porcelain Enamels Design of Bolted Steel Tank for plate and sheet materials, design and Fabrication of the sectional tank to ensure compliance to this Section. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

- ii. Structures are to be engineered with a predicted minimum 30-year design life in accordance with the requirements of ISO 15686 Parts 1, 2 & 3 and incorporate the relevant international design standards giving consideration to the design loads specified in Section 2.3

Tank manufacturer should provide Statement of minimum Design Life and minimum expected service life of the tank to be provided to ensure compliance to this section. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

iii. Tank Manufacturing Process:

- a. Raw Steel Sheets
- b. Sheet punching/laser cutting including pipework cut-outs
- c. Grit blasting to SA2.5/SSPC10
- d. Sheet rolling
- e. Chemical cleaning and rinse
- f. Controlled drying
- g. Application of proprietary pre-coat system
- h. Application of unique high purity 'dry' ELECTROSTATICALLY applied glass enamel coating.
- i. Fire through energy efficient U-shaped furnace at optimum vitrification temperature in the range of 830-850°C
- j. Controlled sheet cooling
- k. End of line inspection including, visual, color, thickness and high voltage tested to ISO 28765 requirements
- l. Packing to domestic and international requirements

Bidder should submit the Manufacturer's Standard Brochure following the required Tank Manufacturing Process to ensure strict compliance to this section. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

b. Tank Size and Capacity

Nominal Diameter:	13.3 m maximum
Sidewall Height:	4.8 m minimum
Minimum Free board	300 mm.
Net Tank Capacity	600 m ³
Finished Foundation Elevations:	0.2 m above Road Elevation
pH Range	3 - 9

c. Design Loads

Roof Live Load:	73.24 kg/m ² (15 psf)
Wind Speed:	270 KPH

Allowable Soil Bearing Capacity: 14,647 kg/m² (3000psf)

Seismic Zone: 4

Specific Gravity of Tank Contents: 1

d. Tank Accessories

- i. One (1) – 600mm. Diameter Mild Steel Black Epoxy Coated or Galvanized finished Low-level Tank Wall Access Manway
- ii. One (1) – Galvanized Mild Steel Access Ladder with Safety Hoops and 1m x 1m Platform set 1.1m below Eaves Level
- iii. Two (2) – 150mm. Diameter Galvanized Wall Flange Connection
- iv. One (1) – 200mm. Diameter Galvanized Wall Flange Connection
- v. One (1) – 400mm. Diameter Roof Inspection Hatch
- vi. One (1) – 500mm. Diameter GRP Fresh Air Roof Vent with all necessary fixing and sealant
- vii. One (1) GRP Perimeter Roof Flashing

e. Roofing Materials and System

Trough Deck Roof.

1. Shall be self-supporting in design. Column supported roof design is not allowed.
2. The roof shall comprise of an epoxy coated or galvanized steel support framework covered with Rib-type / corrugated aluminum sheet and trimmed with a GRP (Glass Reinforced Plastic) perimeter edging profile.
3. The roof shall be substantially air limiting and self-supporting.
4. Roof appurtenances shall include (but not be limited to) 400NB diameter inspection hatch and air vents as required with insect mesh screening.
5. Construction shall be in accordance with the Manufacturer's Construction Guide and should be undertaken by experience, trained and accredited erector-contractor by the Tank manufacturer to assure proper and correct

installation.

B. MATERIALS

I. Plates and Sheets

- a. Tank sheets and panel height shall not exceed 1.2m seam-to-seam. This is to optimize the design thicknesses of the panels.
- b. Plates and sheets used in the construction of the tank shell, optional floor and roofs, shall comply with the minimum standards of ISO 28765:2008 Section 9.2. Such sheets shall be produced by a hot rolling process and shall be sourced from reputable international steel mills.
- c. Tank Sheet- Steel sheets be High Strength Structural Plate conforming to or shall be at least equal to hot-rolled quality with minimum tensile strength of 480Mpa and yield strength of 420 Mpa. Minimum thickness shall be 2mm.
- d. Raw materials delivered to the Manufacturer's plant shall be tested/inspected to ensure compliance with the Manufacturer's requirements for strength.
- e. Test Certificates issued and conducted by third party reputable international organization shall be available for the Engineers inspection if required. Such Certificates shall be requested before the time of issue of the Purchase Order.

II. Horizontal Wind Stiffeners

- a. Where a roof is specified within the scope of supply, the top stiffener shall provide a flat, horizontal, continuous surface at tank rim level.
- b. Where an open topped tank is specified within the scope of supply a variation of stiffeners may be utilized (internal and external) to suit the specific application.
- c. Wind stiffeners shall be steel, hot dipped galvanized, rolled steel angle bar.

III. Bolt Fasteners

- a. Bolts –Galvanized, medium carbon steel bolts, nuts and washers used in the tank joints shall meet the minimum requirements of BS 3692/ISO898, SAE J1199 or ASTM F568M; shall be 12.7mm (1/2”) – 13 UNC-2A rolled thread, Grade 8.8 with minimum tensile strength of 800M/mm² and Yield Strength of 640N/mm²
- b. All bolts for tank shell and Glass-Fused-to-Steel roof (where applicable) shall be installed such that the head portion is located inside the tank and the washer and

nut are on the exterior.

- c. All lap joint bolts shall be properly selected such that threaded portions will not be excessively exposed in the "shear plane" between tank sheets. Also, bolt lengths shall be selected to achieve a neat and uniform appearance. The torque values (as set down in the Manufacturer s Construction Guide) shall not be exceeded during tank construction.
- d. All lap joint bolts shall be designed to prevent rotation during tightening.

IV. Bolt Head Encapsulation

- a. All tank shell and Glass-Fused-to-Steel roof structure bolts shall have UV resistant polypropylene encapsulation of the bolt head and be certified to meet Regulation 31 or NSF Standard 61 for indirect additives.
- b. All other bolts shall be hot deep galvanized conforming to BS 3692 and shall be ½" - 13 UNC-2A rolled thread with hot dipped galvanized coating.

V. Sealant

- a. 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.
- b. The sealant shall be a one component moisture cured polyurethane compound.
- c. Where required, the sealant shall be suitable for contact with potable water and meet Regulation 31 or NSF Standard 61 where specified. (FOOD GRADE)

Bidder should submit Certification of conformity of the Manufactured to Regulation 31 or NSF Standard 61 issued by NSF to ensure compliance to this section. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

- d. EPDM or Neoprene gaskets and tape type sealer shall not be used other than for shell manway door/hatch.

C. GLASS COATING

In cases where both the inside and outside surfaces of the sheet are in contact with the stored liquid both surfaces shall be treated as the inside surface for the purposes of this specification.

I. Coating Standards

a. The tank coating shall meet the quality requirements of ISO 28765:2008 and should conform to the following Standards.

Bidder should submit the Manufacturer's Standard Brochure to ensure compliance to this section. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

INTERNAL COATING

DESCRIPTION	TEST STANDARD	TEST TYPE	RESULT
Dry Film Thickness	ISO 2178	Coating Thickness	260µm – 460µm (10-18mils)
Citric Acid/Sulphuric Acid	ISO 28706-1 Clause 9/10/11	Chemical Resistance	Min. Class AA
Hydrochloric Acid			
Boiling Citric Acid	ISO 28706-2 Clause 10	Accelerated Chemical – Non-Linear	Max. 0.75 g/m ²
Boiling Water – Liquid Phase	ISO 28706-2 Clause 13	Accelerated Chemical – Non-Linear	Max. 2.5 g/m ²
Detergent Solutions	ISO 28706-3 Clause 9	Accelerated Chemical – Non-Linear	Max. 2.5 g/m ²
Hot Sodium Hydroxide	ISO 28706-4 Clause 9	Accelerated Chemical - Linear	Max. 0.876 mm/a
Boiling Water – Vapour Phase	ISO 28706-2 Clause 13	Accelerated Chemical –Linear	Max. 0.328 mm/a
Boiling Hydrochloric Acid	ISO 28706-2 Clause 12	Accelerated Chemical - Linear	Max. 0.146 mm/a
Vapour Phase			
Thermal Shock	ISO 28763 Annex A	Physical Properties	No Damage at 350c

Adhesion	EN10209 Annex C	Physical Properties	Min. Class 2
Impact Resistance	ISO 4532	Physical Properties	Min. 40N
Abrasion Resistance	ISO 6370-2	Physical Properties	Max. 45g/m ²
Scratch Hardness	EN 15771	Physical Properties	Min. Mohs 5
Holiday Test	ISO 2746 – Test A	Coating Porosity	100% discontinuity free at test voltage

EXTERNAL COATING

DESCRIPTION	TEST STANDARD	TEST TYPE	RESULT
Dry Film Thickness	ISO 2178	Physical Properties	160µm – 500µm (6-19mils)
Colour	L.a.b. Colour Space	Spectrophotometry	Min. EN ISO 28765
Adhesion	EN10209 Annex C	Physical Properties	Min. Class 2
Scratch Hardness	EN 15771	Physical Properties	Min. Mohs 5
Impact Resistance	ISO 4532	Physical Properties	Min. 40N

b. Surface Preparation

- i. Sheets shall be steel grit-blasted to a silver-grey finish on both sides to remove mill scale and surface oxidation.
- ii. Grit blasting shall be performed to the equivalent of SA2½ or SSPC-SP10.
- iii. The surface anchor pattern shall be in the range of 20µm to 100µm with a target value of 60µm.

c. Cleaning

- i. Immediately after fabrication and grit blasting and prior to application of the coating materials, all sheets shall be thoroughly cleaned by an alkali wash.
- ii.
- iii. Following the alkali wash all sheets shall be rinsed in hot water containing a nitrite-based rust inhibitor.
- iv. The rust inhibition process shall be followed by heat drying to ensure the sheets are clean and dry ready to be coated.

d. Coating

- i. All sheets shall receive a coat of catalytic nickel oxide-based pre-coat to both sides. The pre-coat application weight is controlled and measured and sheets that do not meet the required specification, in accordance with the Manufacturer's specified parameters, shall be rejected at this point.
- ii. All pre-coated sheets shall be heat dried to ensure that a moisture free surface has been achieved before the glass coating layer is applied.
- iii. A 'DRY' coat of cobalt rich glass slip shall be continuously applied ELECTROSTATICALLY to both sides of the sheet followed by heat drying.
- iv. The coated sheets shall be visually inspected and sheets with spray or glass defects shall be rejected at this point.
- v. The thickness of the coating system shall be measured using an electronic instrument; the instrument shall have a valid calibration record. Interior and exterior dry film coating thicknesses are controlled and measured and sheets that do not meet the required specification, in accordance with the Manufacturer's specified parameters, shall be rejected at this point.
- vi. After inspection the sheets shall be fired through the furnace at approximately 850°C in accordance with the Manufacturer's procedures.
- vii. The firing process shall form a composite glass surface having general acid/alkali resistance to solutions in the range pH 3 to pH 9, subject to temperature and chemical composition.
- viii. Tank inside sheet color shall be as specified by the Manufacturer. Tank external color shall be Blue (20-C-40) or Green (12-B-29).
- ix. Sample tests shall be carried out by the Manufacturer to ensure that enamel materials meet the physical properties and chemical resistance

characteristics as published in the Manufacturer's product Quality Standard. The Manufacturer shall provide published product Quality Standards detailing the International Standards used for testing.

Bidder should submit Manufacturer's Product Quality Standards detailing International Standards used for Manufacturing and Sheet Coating Procedure and Process. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

e. Inspection

- i. Inspection procedures shall be carried out within the Manufacturer's plant under ISO 9001:2000 Quality Management System.
- ii. A color comparator shall be used to measure the color of the outside sheet surfaces. Electronic color control shall be used to ensure that allowable color uniformity is achieved within the Manufacturer s specified parameters. Sheet of a color outside of these limits shall be rejected.
- iii. The instrument used shall have a valid calibration record and shall be regularly checked against the Manufacturer s approved calibration standard.
- iv. Color measurement frequency shall be every 15 minutes and following every color and sheet thickness change.
- v. Finished sheets shall be inspected for coating thickness using an approved instrument suitable for a measurement range of 0-500µm.
- vi. The instrument shall have a valid calibration record and shall be regularly checked against the Manufacturer s approved calibration standard.
- vii. The thickness of the glass on the inside surface of every sheet shall be maintained in the range from 260-460 µm.

viii. The thickness of the glass on the outside surface of every sheet shall be maintained in the range from 160-500 μ m.

ix. Sheets having a glass thickness outside of these ranges shall be rejected.

x. The outside surface of all sheets shall be inspected visually under good daylight (or equivalent lighting) for defects in the glass coating.

xi. Any sheet having visible defects larger than 1mm shall be rejected. Any sheet having more than three visible defects per m² of the total sheet area shall be rejected.

xii. Any visible defects on the outside surface of accepted sheets shall be repaired using a repair material approved by the Manufacturer for this purpose and applied according to the repair material Manufacturer's instructions.

xiii. The inside sheet surface shall be inspected using a high voltage tester approved by the Manufacturer for this purpose and used in accordance with Test A of EN 1430.

xiv. Inspection shall be carried out on every sheet and any sheet having any discontinuities shall be rejected.

xv. No factory touch-ups or repairs shall be permitted on any inside surface discontinuity found during inspection.

xvi. The tester shall have an accuracy of $\pm 1\%$ such that the voltage at the test probe and a test voltage of 700volts shall be used. The tester shall have a valid calibration record.

xvii. Only finished sheets with zero glass continuity defects on the inside surfaces shall be released for packing.

xviii. An owner's representative may be present during these inspection procedures at their own cost.

f. Packing

i. All finished sheets shall be handled within the manufacturing plant

using magnetic or suction pads.

- ii. All approved sheets shall be protected from damage prior to packing for shipment.
- iii. All sheets shall be packed with a suitable membrane between the sheets.
- iv. Individual stacks of sheets shall be wrapped in a specified heavy-duty plastic and steel banded to special pallets built to the roll radius of the tank sheets where necessary. This procedure eliminates contact movement of finished sheets during shipment.
- v. Transportation of finished products shall be by dedicated haulier.

D. ERECTION

1. Field erection of the Glass-Fused-to-Steel, bolted-steel tank shall be in accordance with the procedures outlined in the Manufacturer's Construction Guide and performed by an Authorized Distributor of the tank Manufacturer, regularly engaged in erection of these tanks or a suitably qualified specialist subcontract builder under the control and supervision of the Authorized Distributor.

Bidder should submit Tank Erection and Construction Guide issued by Tank Manufacturer.

2. Field erection shall conform to Occupational Safety Standard for erection and should be undertaken by a qualified tank erector certified by the tank manufacturer. Specialized erection jacks and building equipment developed and manufactured by the tank manufacturer shall be used to erect the tanks.

Bidder should submit Certification of Conformity and Competence as a Skilled and Specialized Tank Erector from Tank manufacturer. Such document should be authenticated by Philippine Consul or the Office of the Local Chamber of Commerce within the manufacture's country of origin.

3. Tank lap joint should be done in such a way that seam will follow a straight seam connection and should be in accordance with Manufacturer's Erection manual.
4. Levelling and circularity of the first ring of sheets shall be required. The maximum level differential within the ring shall not exceed 2mm, nor exceed 1mm within any 3m length.

5. Particular care shall be taken in handling and bolting of the tank sheets and members to avoid abrasion of the coating system. All surface areas may be visually inspected by the Engineer during construction and prior to liquid tests.
6. An electrical Holliday test shall be performed on all contact surfaces of the tank shell sheets during or following construction using a 9-volt leak detection device. Any electrical leak points found on the contact surface shall be repaired in accordance with the Manufacturer's published touch up procedure. After completion of tank build and hydraulic testing the Engineer shall sign the Manufacturer's standard Certificate of Satisfaction issued by the Authorized Tank Distributor.
7. No backfill or mechanical loads shall be placed on the tank sidewall without prior written approval and design review by the tank Manufacturer. Any backfill shall be placed according to the instructions of the Manufacturer.

E. APPURTENANCES

The ancillary items of equipment should be installed as shown on the plans and as detailed in these specifications. They may include, but are not restricted to the following items:

1. Outside Tank Ladder

- a. An outside ladder (SPIRAL TYPE) with safety cage beginning a minimum of 2.2M above the level of the tank bottom and at the location designated. Outside ladder and cage shall be in accordance with BS 4211 Class A or OSHA 1910.27.

2. Inside Tank Ladder (Optional)

- a. An internal ladder, if required, shall be installed below the roof hatch and shall be fabricated in galvanized mild steel, or stainless steel or GRP (Glass Reinforced Plastic) and be in accordance with BS 4211 Class A or OSHA 1910.27.

3. Access/Inspection Platform

- a. A 1m square galvanized steel platform shall be installed to allow safe access to the roof hatch. Platform shall be in accordance with BS 4592 or OSHA 1910.27.

4. Shell Access Manway

- a. One galvanized or epoxy coated circular manway having an opening size of 600mm diameter shall be provided in the middle of the tank sheet clear of any vertical and horizontal bolt seams. The manway shall include a reinforcing frame and cover plate with a hinged support for cover removal. The manway cover plate shall be sealed with an approved

gasket system.

5. Inlet and Outlet Connections

a. All galvanized or epoxy coated inlet, outlet and overflow connections shall conform to the sizes specified on the submittal drawings and shall be located so as to avoid vertical and horizontal bolt seams. Positions shall be agreed between the Engineer and the Authorized Tank Distributor.

b. Where connections are shown to pass through tank sheets, these shall be pre-cut by the tank Manufacturer during manufacture.

c. When necessary, openings may be field located, saw cut, (acetylene torch cutting, grinding or welding is not permitted) and shall utilize an interior and exterior flange assembly.

d. Polyurethane sealant shall be applied on any cut sheet edges or bolt connections.

e. Inlet, outlet and overflow connections shall be galvanized or epoxy coated steel.

F. FIELD TESTING

1. Leak Test

a. Following completion of erection, low voltage electrical testing and cleaning of the tank, (and making due allowance for the full curing of the sealants) the structure shall be tested for liquid tightness by filling to its overflow elevation for a 24-hour period.

b. Any leaks disclosed by this testing shall be corrected by the erector in accordance with the Manufacturer's recommendations.

c. Water required for testing shall be furnished by the Owner at the time of tank erection completion and at no charge to the Authorized Tank Distributor. Disposal of test water shall be the responsibility of the Owner.

d. Labor and equipment necessary for tank testing shall be included in the price of the tank. Upon satisfactory completion of the 24hrs hydraulic leak test the Engineer shall sign the Manufacturer's Certificate of Satisfaction issued by the Authorized Tank Distributor.

G. DISINFECTING

1. Polyurethane Sealants

a. Disinfection shall not take place until the polyurethane joint sealant is fully cured (10 to 12 days @ 21°C 50% Relative Humidity).

b. The tank shall be disinfected for use by chlorination in accordance with Method 3 of ANSI/AWWA C-562-02 as amended by the Manufacturer.

H. ONE YEAR WARRANTY

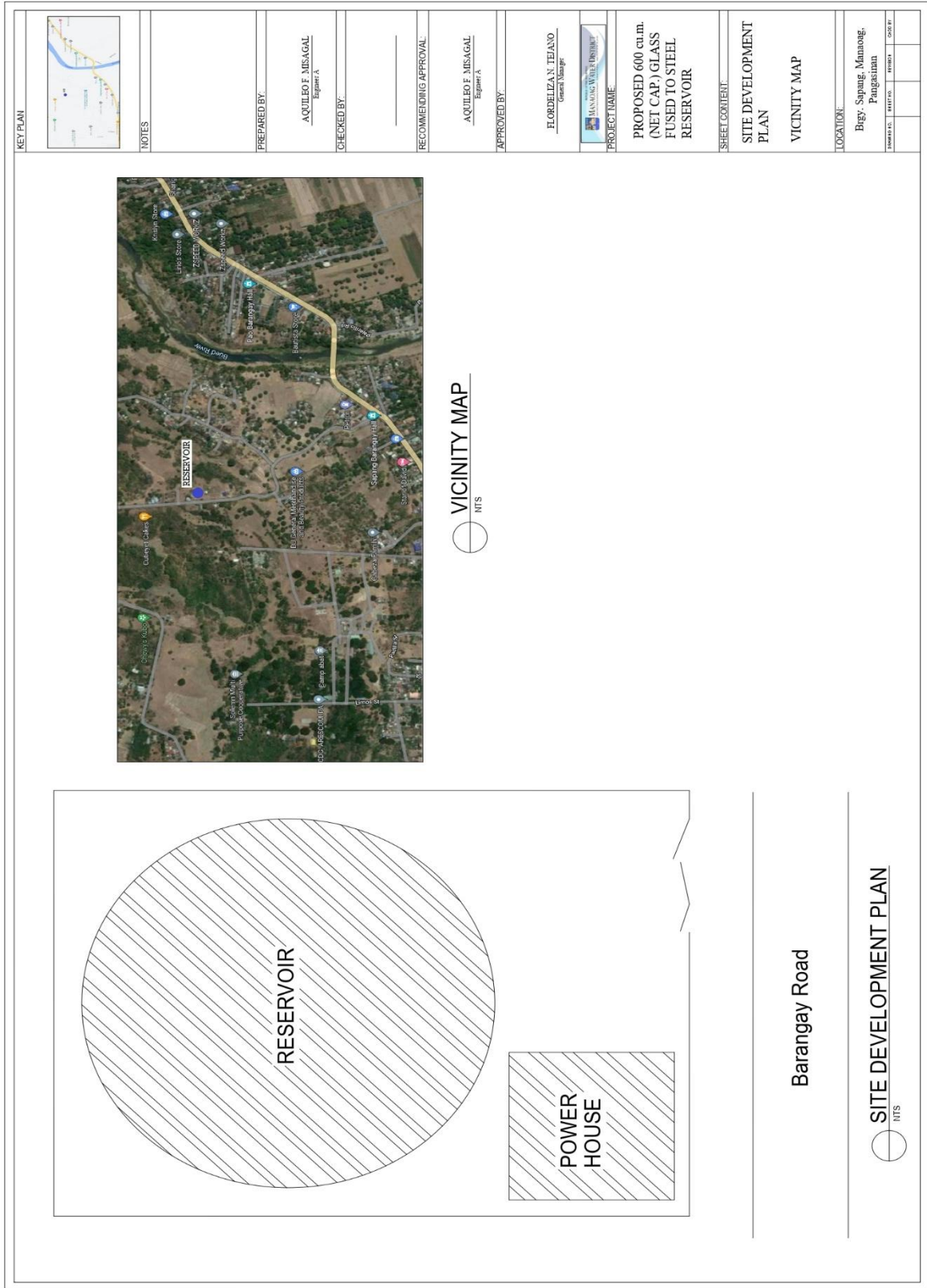
1. If, within twelve calendar months from the date of delivery of the tank, or any part thereof, shall prove to be defective by reason of poor design, materials or manufacture upon examination by the Manufacturer or his Authorized Distributor, the Manufacturer will supply an identical or similar replacement part or at its own option will repair the part.


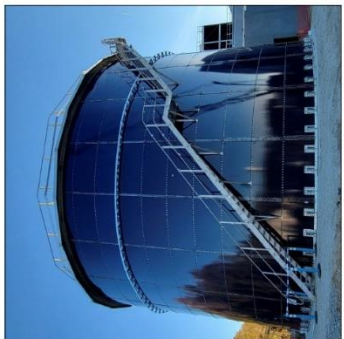
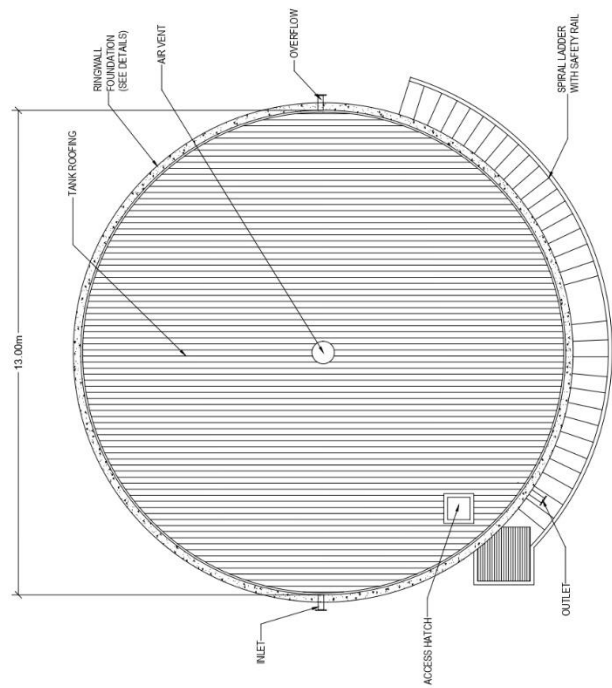
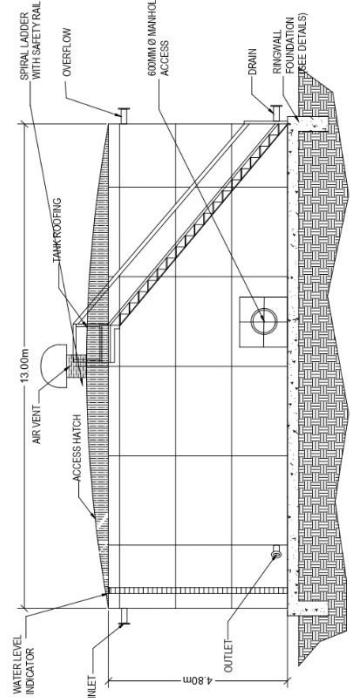
I. INSPECTION AND MAINTENANCE

Inspection and Maintenance should be in accordance with the Manufacturer's Inspection and Maintenance Manual.



Section VII. Drawings



<p>KEY PLAN</p> 	<p>NOTES</p>	<p>PREPARED BY: AQUILDO F. MISAGAL <i>Engineer A</i></p>	<p>CHECKED BY:</p>	<p>RECOMMENDING APPROVAL:</p>	<p>APPROVED BY: AQUILDO F. MISAGAL <i>Engineer A</i></p>	<p>APPROVED BY: FLORDELIZAN TEJANO <i>General Manager</i></p>	<p>PROJECT NAME: PROPOSED 600 cu.m. (NET CAP.) GLASS FUSED TO STEEL RESERVOIR</p>	<p>SHEET CONTENT: TANK PLAN TANK ELEVATION</p>	<p>LOCATION: Brgy. Sapang, Marikina, Pangasinan</p>
 <p style="text-align: center;">TANK PERSPECTIVE SCALE 1:100 MTS</p>									
 <p style="text-align: center;">TANK PLAN SCALE 1:100 MTS</p>					 <p style="text-align: center;">TANK ELEVATION SCALE 1:100 MTS</p>				

Section VIII. Bill of Quantities

Notes on the Bill of Quantities

Objectives

The objectives of the Bill of Quantities are:

- a. to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- b. when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Daywork Schedule

A Daywork Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Entity of the realism of rates quoted by the Bidders, the Daywork Schedule should normally comprise the following:

- a. A list of the various classes of labor, materials, and Constructional Plant for which basic daywork rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a daywork basis.
- b. Nominal quantities for each item of Daywork, to be priced by each Bidder at Daywork rates as Bid. The rate to be entered by the Bidder against each basic Daywork item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the

future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Procuring Entity's Representative's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Procuring Entity to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Signature Box

A signature box shall be added at the bottom of each page of the Bill of Quantities where the authorized representative of the Bidder shall affix his signature. Failure of the authorized representative to sign each and every page of the Bill of Quantities shall be a cause for rejection of his bid.

These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final documents.

Project Name:	The Design and Supply of Labor and Materials for the Construction of 600 cubic meters Glass Fused to Steel Bolted Reservoir with Complete Appurtenances and Tank Fittings/Accessories, Electro-mechanical Equipment, Constant Pressure System at Brgy. Sapang, Manaoag, Pangasinan				
Location:	Brgy. Sapang, Manaoag, Pangasinan				
Funding Source:	District Fund				
BILL OF QUANTITIES					
Item No.	Description	Unit	Quantity	Unit Cost	Total Cost
A	PRELIMINARIES				
A.1	Complete Plans (Sign and Sealed)	LS	1.00		
A.2	Permits (Building, Excavation, Electrical, Etc.)	LS	1.00		
A.3	Soil Test (with Report/Analysis/Recommendation)	LS	1.00		
A.4	Mobilization	LS	1.00		
A.5	Site Preparation	LS	1.00		
A.6	Other Requirement	LS	1.00		
	<i>Concrete Testing/Billboards/Warning Signs/etc.</i>				
	TOTAL A				
B	GLASS FUSED TO STEEL RESERVOIR (13 Meter Diameter) / RINGWALL FOUNDATION / ACCESSORIES				
B.1	Structural Foundation (min. 4000psi) / Concrete Works	LS	1.00		
B.2	Subgrade Preparation	LS	1.00		
B.3	Forms and Scaffoldings	LS	1.00		
B.4	Excavation and Earthworks	LS	1.00		
B.5	Load Bearing Backfill/Gravel	LS	1.00		
B.6	Glass fused to Steel Bolted Reservoir Assembly (600 cu. m Net Capacity)	LS	1.00		
B.7	Tank Accessories	LS	1.00		
B.8	Liquid Sensor Relay	LS	1.00		
B.9	Piping Works and Valving System	LS	1.00		
	TOTAL B				
C	ELECTRO-MECHANICAL EQUIPMENT/CONTROL PRESSURE SYSTEM				
C.1	Automatic Transfer Switch	EA	1.00		
C.2	Disinfection Facility 230VAC (Set)	EA	1.00		
C.3	Intake and Discharge Line Assembly	EA	1.00		
	TOTAL C				
D	WATER TREATMENT/HYDROTEST/LEAK TEST, ETC.				

D.1	Electric Holiday Test	LS	1.00		
D.2	24-Hr Tank Hydraulic Leak Test	LS	1.00		
D.3	Laboratory Analysis of Raw and Treated Water	LS	1.00		
	TOTAL D				
E	DEMOBILIZATION/SITE CLEANUP/DISPOSABLE OF EXCESS MATERIALS				
E.1	Demobilization/Site Clean Up/Disposable Excess Materials	LS	1.00		
	TOTAL E				
	TOTAL COST				



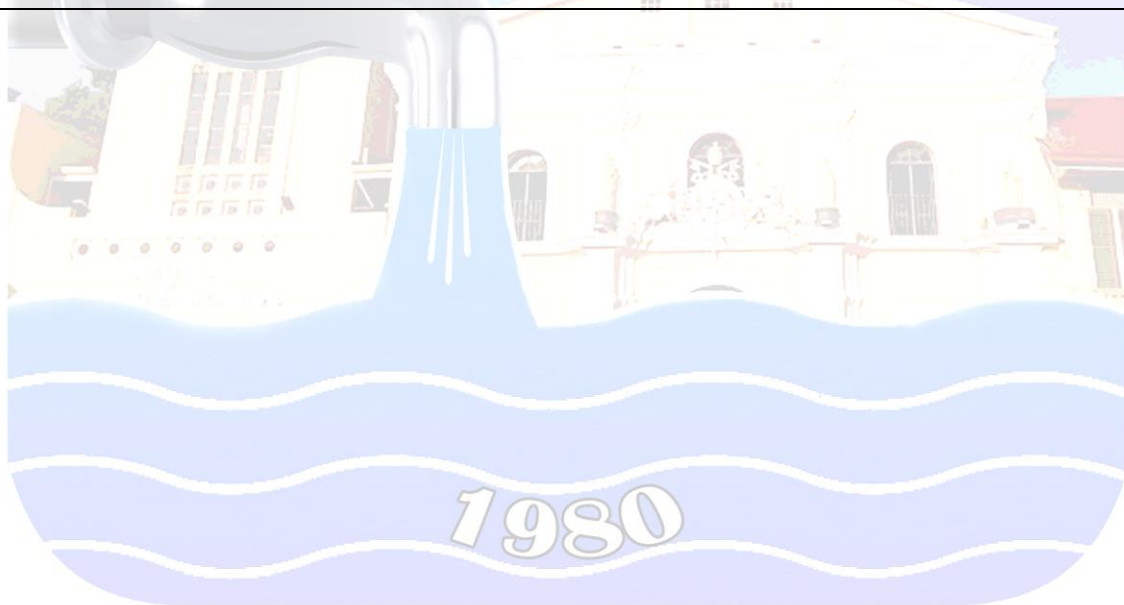
Section IX. Checklist of Technical and Financial Documents

Notes on the Checklist of Technical and Financial Documents

The prescribed documents in the checklist are mandatory to be submitted in the Bid, but shall be subject to the following:

- a. GPPB Resolution No. 09-2020 on the efficient procurement measures during a State of Calamity or other similar issuances that shall allow the use of alternate documents in lieu of the mandated requirements; or
- b. any subsequent GPPB issuances adjusting the documentary requirements after the effectivity of the adoption of the PBDs.

The BAC shall be checking the submitted documents of each Bidder against this checklist to ascertain if they are all present, using a non-discretionary “pass/fail” criterion pursuant to Section 30 of the 2016 revised IRR of RA No. 9184.



Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
- (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;
- (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;
- (e) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

- (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid;
- (g) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules;
- (h) Philippine Contractors Accreditation Board (PCAB) License; Special PCAB License in case of Joint Ventures; registration for the type and cost of the contract to be bid;
- (i) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission; Original copy of Notarized Bid Securing Declaration;
- (j) Project Requirements, which shall include the following:
 - a. Organizational chart for the contract to be bid;
 - b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
 - c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be;
- (k) Original duly signed Omnibus Sworn Statement (OSS);

if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

- (l) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission;
- (m) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

- (n) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence; duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

- (o) Original of duly signed and accomplished Financial Bid Form;

Other documentary requirements under RA No. 9184

- (p) Original of duly signed Bid Prices in the Bill of Quantities;
- (q) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid;
- (r) Cash Flow by Quarter.

