

# **BID BULLETIN NO. 01**

# 30 OCTOBER 2024

I. Attention is hereby invited to the Bidders of DESIGN & CONSTRUCTION OF PORTABLE SEWERAGE TREATMENT PLANT (STP) & INTERCONNECTION OF PIPE NETWORK & SEPTIC TANK.

# II. Pls be informed of the following issues/clarifications:

lssues/Queries	Response/Clarification(s)	
Query No. 1:	Allowed. Small B - License Category C&D	
On the Bid Data Sheet (Page 20) and Checklist of	(Sewerage and Sewage Treatment/ Disposal	
Technical and Financial Documents (Page 198),	Plant) is only minimum requirement.	
it was mentioned that one of the requirement as		
PCAB License in case of Joint Venture is the <b>Small B</b>		
- License Category C&D (Sewerage and Sewage		
Treatment/ Disposal Plant). Since Krypton		
International Resources Sales & Services, Inc. is		
a holder of PCAB License under General Building		
Category A (which includes GB-1 to GB-4), would		
you allow/consider us to submit this PCAB License		
to participate in this project.		
Query No. 2:	The requirement for SLCC will remain as stated	
On the Bid Data Sheet ITB Clause 5.2 (Page	in the Bid Data Sheet ITB Clause 5.2	
20) and Checklist of Technical and Financial	(Page 20) and Checklist of Technical and	
Documents Technical Documents - C (Page 198):	Financial Documents Technical Documents -	
SINGLE LARGEST COMPLETED CONTRACT	C (Page 198): SINGLE LARGEST COMPLETED	
	CONTRACT.	
We respectfully request your consideration for the		
Single Largest Completed Contract (SLCC)		
requirement as stated in the bidding documents.		
While the current requirement calls for a single		
contract, we kindly request that you allow us to		
submit two (2) similar completed		
contracts/projects that are of similar nature and		
complexity to the project at hand.		
We suggested that the total value of these two		
we guarantee that the total value of these two		
aggregated contracts will be equivalent to at least		
Contract (APC) which amounts to		
Dbp12 994 729 045		
PTIPT2,004,730.043.		
We believe that this approach still meets the intent		

of the SLCC requirement and demonstrates our capability to execute a project of this scope and			
complexity			
Query No. 3:	The requirement is <b>Multidisc Screw</b>		
On the Bill of Materials & Cost Estimate Form	Press: Model 101, Capacity 0.6 m³/hr.		
-4.00 MECHANICAL WORKS - 4.01 Design and	However, we allow the bidders to offer other		
Construction of 260 CMD STF (Page 188), there	models, as long as it is of the same capacity of		
was a specific model mentioned for the Multidisc	0.6 m <sup>3</sup> /hr or higher and the specifications of the		
Screw Press: Model 101, Capacity 0.6 m³/hr,	offered model do not deviate much from the		
would you consider our offer <b>Model</b>	original model specified on the Bill of Materials		
<b>131</b> of Multidisc Screw Press with the same	and Cost Estimate Form.		
Capacity of 0.6 m³/hr?			
Query No.4:	No preference.		
Do you have a preferred color for the envelopes &			
folder? How about the size of the bond paper, is it			
A4 Size or Short Size?			
Query No. 5:	Yes. All documents should have page number		
Do we need to put a page number in each page of	in the format "Page <b>2</b> of <b>120</b> ."		
the bidding proposal?			
	None Aslang as it is properly signed and		
Query No. 6:	socied		
bid proposal?	sealed.		
	Not required but BAC Office will require you to		
Do we need to attached the Official Receipt for the	present your official receipt upon submission		
purchase of the Bidding Documents in our	of bidding documents		
proposal?			
Ouerv No. 8:	1. PhilGEPS Registration Certificate may suffice		
On the <b>Checklist of Technical and Financial</b>	the requirement noting that all legal		
Documents (Page 198)	documents are valid during the opening of		
1. Since only the Valid PhilGEPS Registration	bids. However, these pertinent documents		
Certificate (Platinum Membership) was listed	will be required during the post qualification		
on the Legal Documents, are we no longer	process and a requirement for submission		
required to submit the other documents like	in compliance to Post Qualification letter.		
SEC Certificate, Mayor's Permit, Tax Clearance	2. Yes. Proof of procurement documents, such		
& Latest Audited Financial Statement?	as but not limited to:		
2. For the Ongoing projects, do we still need to	•Notice of Award		
attached supporting documents as proof?	<ul> <li>Notice to Proceed</li> </ul>		
	<ul> <li>Contract Agreement</li> </ul>		
	<ul> <li>Updated or Latest Statement of Work</li> </ul>		
	Accomplishment listed on the CAAP-BAC-		
	SF Annex "A" Form 1 (Ongoing		
	Government/Private Contracts Awarded		
	but Not Yet Started)		
Clarification on the Scopes of Work	Please see attached revised Scopes of Work.		
	Terms of Reference added.		

- III. New schedule of Submission and Opening of Bids is on 12 November 2024.
- IV. For more information and clarification, you may call the BAC Office at (02) 8246-4988 loc. 2236 or email at <u>bac@caap.gov.ph</u>

This Bid Bulletin should be included in the Technical Requirements and be marked accordingly. This serves as an integral part of the bidding documents of the project and non-inclusion of this Bid Bulletin in the Technical Requirements constitute disqualification. Bidders are not required to include the sub attachments of the provided Bid Bulletins.

For the information and guidance of all concerned.

Elgando J. Diaz

CAPTAIN EDGARDO G. DIAZ Chairperson, Bids and Awards Committee



Name of Project

Location Duration

1.

DESIGN & CONSTRUCTION OF PORTABLE SEWERAGE TREATMENT PLANT (STP) & INTERCONNECTION OF PIPE NETWORK & SEPTIC TANK

CAAP Head Office, NAIA Road, Pasay Three Hundred (300) Calendar Days (inclusive of 20 rainy/unworkable days)

## SCOPE OF WORK

The details of work are at best enumerated below, but be noted that the Contract includes all works and services although not specifically mentioned herein, but are needed to fully complete the Project:

The project covers the supply of labor, materials, mobilization/demobilization, tools/equipment's, and construction related permits necessary for **Design & Construction of Portable Sewerage Treatment Plant (STP) & Interconnection of Pipe Network & Septic Tank** with the following scope of works which shall be done in accordance with the approved plans, specifications and provision of contract to wit: (Work shall include but is not limited to the following)

# GENERAL REQUIREMENTS

## 1.a Mobilization/Demobilization

This work includes mobilization and demobilization of the contractor's resources and equipment necessary for performing the work required under the contract.

A. Mobilization shall include all activities and associated costs for transportation of contractor's manpower, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site.

B. Demobilization shall include the disassembly of offices and other facilities on the site, equipment, as well as the removal and hauling of debris and rubbish materials.

The following provisions must be delivered within seven (7) days upon receipt of the Notice to Proceed (NTP).

# I.b Occupation Safety and Health Program

The contractor shall be responsible in providing personal protective equipment (PPE) for CAAP-PMO, staffs and workers. Also, the contractor is responsible in providing safety practitioner and safety aides at the job site for the whole duration of the project.

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# I.c Project Billboard/Sign Board

This covers the provision of project billboard/signboard (4'  $\times$  8' tarpaulin size) constructed in a sturdy material, visible to public, and if possible, near the construction site.

# II. SEWERAGE TREATMENT FACILITY

# 1.0 CIVIL/STRUCTURAL WORKS

This involves the civil works of the construction of the sewerage treatment facility with the following technical specification requirements:

# A. SEWAGE TREATMENT FACILITY CONCRETE TANKS:

- A.1. Depth of Concrete Tank: 4.0 meters.
- A.2. Minimum compressive working strength of concrete for tank walls and floor slab: 4,000 psi minimum.

A.3. Tank floor Slab must have a minimum thickness: 0.35 meter. A.4.Tank wall must have a minimum thickness: 0.25 meter.

## B. FACILITY WALKWAYS AND RAILINGS:

#### Walkways

- B.1. Minimum Concrete Thickness of 0.15 meter.
- B.2. Minimum walkway width of 0.8 meter.
- B.3. Provision of Steel Ladder for elevated walkways.

B.4. Floor: Polyurea coated

#### Railings

B.5. Made of SS 304 pipe 1 1/2".

B.6. Provision of toe guard on bottom part of railings

#### C. FACILITY ELECTRICAL AND EQUIPMENT ROOM:

# Electrical and Control Room

- C.1. CHB wall and concrete roof slab
- C.2. Provision of Sliding Window
- C.3. Wooden made Door

C.4. Floor tile Finished and painted wall finished (2 coats primer, 2 coats Top coat)

C. 5. Provision of Air-conditioning system for proper ventilation

# Blower Room

C.6. CHB wall and concrete roof slab with one side louver blocks.

C.7. Steel Louver Door with minimum width of 1.4 Meters.

C.8. Epoxy Floor Paint Finished and painted wall finished (2 coats primer, 2 coats Top coat)

C.9. Provision of Air Exhaust system for proper ventilation.

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# • Chemical Preparation and Dosing, and Filtration System Area

C.10. Combination of Tubular Steel and Steel matting wall, and Rib type roofing.

C.11. Combination of Tubular Steel door with minimum width of 1.4 Meters.

C.12. Epoxy Floor Paint Finished and painted wall finished (2 coats primer, 2 coats Top coat)

# 1.01 Site Works

The work includes the supply of labor and equipment necessary to complete the clearing works, earthworks such as excavation for the construction of Lower Chamber, Upper Chamber, Footings, Columns and Wall Footings, and lay outing and staking. This also includes the backfilling works and provision of gravel bedding conforming to the required thickness as indicated on the approved plans. The Contractor must provide equipment for hauling and disposal of excavated materials and site cleanup.

- Total Volume for Excavation = 248.12 cu.m.
- Total Volume for Backfill = 2.25 cu.m.
- Total Volume for Gravel Bedding = 9.00 cu.m. (delivered on site)

## 1.02 Concreting Works

The work includes the supply of materials and labor necessary to complete the concreting of lower chamber, upper chamber, column footing, wall footings, columns, slab on fill, beams, girders, concrete gutter, roof deck and parapet wall as indicated on the approved plans. The strength of concrete will be 3500psi. Materials to be used and workmanship must be approved by the Project In-Charge assigned by CAAP.

• Total Volume = 123.50 cu.m.

# 1.03 Masonry Works (Including Plastering)

The work includes materials, labor, equipment/tools for the laying of 150mm thick concrete hollow block (CHB) for exterior walls including mortar, ¾" thick plastering on both sides (Rough Finish) prior to application of skim coat & installation of reinforcing steel bars as indicated on the approved plans. Materials to be used and workmanship must be approved by the Project In-Charge.

Total Area of Masonry Works = 34.62 sq.m.

#### 1.04 Steel Works

The work includes all materials, labor, and tools/equipment needed to complete the fabrication and installation of all structural steel members of railings and stair area

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including 2-coats painting of epoxy paint as indicated on the approved plans. Materials to be used and workmanship must be approved by the Project In-Charge assigned by CAAP.

Total Weight of Steel = 1,484.06 kgs.

## 1.05 Waterproofing

The work includes all materials and labor needed to complete the waterproofing of upper chamber, lower chamber and roof deck using polyurea and in roof deck we adding a concrete topping with 100mm x 100mm x 3mm steel mesh as indicated on the approved plans.

• Total Area of waterproofing = 427.77 sq.m.

# 2.00 ARCHITECTURAL WORKS

#### 2.01 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior wall and interior wall as indicated on the approved plans. Materials to be used and workmanship must be approved by the Project In-Charge.

• Total Area of Painting Works = 228.70 sq.m.

# 2.02 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories including jamb and header as indicated on the approved plans. Materials to be used and workmanship must be approved by the Project In-Charge assigned by CAAP.

- Number of doors = 4 sets
- Number of windows = 7 sets

#### 3.00 ELECTRICAL WORKS

## 3.01 Control Panel

The work includes all materials, labor, and equipment/tools for the installation of 1.00 assembly of Main Control Panel (Stainless Material 1,600mm x 2000mm x 500) made of SUS grade material, minimum thickness of 1.5 mm sheet with SUS hinges and locks. This includes MCCB, Contactors, Overload Relays, Transient Voltage Surge Protection, Power Monitor, Current Transformers, DC Power Supply, Suppressor Device, Over-Under Voltage Phase Sequence Relay, Pilot Lights, Selector Switches, Emergency Stop Switch, Buzzer, Power and Control Wiring (TF Wire), Busbar Assembly, Fuse Holder, Fan and Filter, Terminal Blocks, provision of isolation switch (waterproof type) for each pumps

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and blowers installed, provision of Process Logic Control (PLC) and Human Machine Interface (HMI) which includes PLC and HMI Programming capable of remote monitoring, inclusion of Monitoring Controls (pH and Dissolved Oxygen Meters) in the Main Panel, provision of Variable Frequency Drive (VFD) individually for each pumps and blowers installed, with proper labeling, standard accessories and other hardware to complete the installation. Also includes 1.00 assembly of Panelboard (PP) for Lifting Stations pumps. All control panels should be tested and commissioned.

## 3.02 Wires, Cables and Conduits

The work includes all materials, labor, and equipment/tools for the installation of 8,701.00 linear meter of wires, cables and conduits including conduit fittings, cable trays, electrical boxes, hangers and supports, termination accessories, standard accessories and other hardware to complete the installation. All wires, cables and conduits shall be Underwriters Laboratories (UL) Listed to ensure that the product meets nationally recognized standards for sustainability and safety. All wires and cables shall be tested and passed Insulation Resistance Test prior to energization.

# 3.03 Main Feeder Wires, Cables and Conduits

The work includes all materials, labor, and equipment/tools for the installation of 375.00 linear meter of wires, cables and conduits including conduit fittings, ground rod, hangers and supports, termination accessories, standard accessories and other hardware to complete the installation. All main feeder wires, cables and conduits shall be Underwriters Laboratories (UL) Listed to ensure that the product meets nationally recognized standards for sustainability and safety. All wires and cables shall be tested and passed Insulation Resistance Test prior to energization.

# 3.04 Lighting Fixtures and Wiring Devices

The work includes all materials, labor, and equipment/tools for the installation of 16.00 sets of lighting fixtures and electrical wiring devices including standard accessories and other hardware to complete the installation. All lighting fixtures and wiring devices should be tested and commissioned.

#### 4.00 MECHANICAL WORKS

# 4.01 Design and Construction of 260 CMD STF

The work includes the supply of labor, materials, tools and equipment needed to complete the Design and Construction of 260 CMD STF included in the approved plans. This shall also include all necessary piping works (Please refer to plans and specifications).

# 1. PRE-SCREENING EQUIPMENT (MECHANICAL STEP SCREEN):

Complete with all required activities, such as but not limited to the following;

- A. Automated operation
- B. Material Stainless Steel 304 grade





# 2. TRANSFER PUMPS AND MIXING PUMPS:

Complete with all required activities, such as but not limited to the following;

- A. TRANSFER PUMPS
  - A.1.Submersible non-clog type with minimum rated capacity of 20 cu. Meter per hour at 10 meters TDH.
  - A.2. Provision for 1 unit Online, one unit back up (N+1)
  - A.3. With Guide Rail and SUS 304 Material Brackets.
  - A.4. SUS 304 Schedule 40 Pipe and fittings.
  - A.5. Provision of Electromagnetic Flow meter with data logger for both trains.
- B. MIXING PUMPS
  - B.1.Submersible Non-Clog type with minimum rated capacity of 30 cu. Meter per hour at 10 meters TDH.
  - B.2. Provision for 1 unit Online , one unit back up (N+1)
  - B.3.With Guide Rail and SUS 304 Material Brackets.

B.4. SUS 304 Schedule 40 Pipe and fittings.

# 3. AERATION BLOWERS:

Complete with all required activities, such as but not limited to the following;

A. LUBE TYPE ROOTS BLOWERS

- A.1. Silent type Roots blowers, with maximum noise level of 75dB.
- A.2. Provision for 1 unit Online per Train, Plus one unit back up)A.3.With Minimum Airflow Capacity of 4.5 cu. Meter per hour at rated electrical capacity of 5HP (3.7 KW).

# 4. AERATION PIPINGS AND DIFFUSERS:

A.

- AIR DIFFUSERS
- A.1.Use tubular membrane (fine bubble) diffuser in aeration tank. Use Coarse bubble diffuser for air mixing purposes.
- A.2. Fine Bubble Diffusers must have a minimum Oxygen transfer rate of 5.5% per meter immerse.

A.3.The Fine Bubble diffuser membrane is made of ethylene propylene diene monomer (EPDM) rubber. And Acrylonitrile Butadiene Styrene (ABS) Plastic Body.

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A.4.Coarse Bubble Diffusers must have an air flow capacity of 0.3 cu. Meter per min. with a maximum hole diameter of 5mm.

# 5. FILTRATION SYSTEM:

Complete with all required activities, such as but not limited to the following;

# A. FILTER TANK AND MEDIA

A.1. High Rate / Pressurized with filtration rate of 13.0 gpm / sf.

- A.2. Must have a minimum of at least two (2) Media Filters.
- A.3. Filter media is composed of Silica Sand, anthracite coal, and pebbles.

A.4. With an auto backwash control head.

#### B. FILTRATION FEED PUMPS

- B.1.Pump rated flow capacity of 12 cu. Meter per hour at minimum 40 Meters TDH.
- B.2. Self-priming capacity
- B.3. Provision for 1 unit Online, one unit back up (N+1) for 2 trains system.
- B.4. Stainless 316 grade pump head.

# 6. ONLINE MONITORING AND DOSING EQUIPMENT:

Complete with all required activities, such as but not limited to the following; A. PH METER AND DOSING PUMPS

A. PH METER AND DUSING PUMPS

A.1.Submerged type sensor with holder.

- A.2. pH range 0-14
- A.3. Dosing pumps must have a 4-20ma control connection capability. With a minimum capacity of 8 liters per hour at 5 bars. Solenoid type
- A.4. Dosing pumps are Solenoid type with PVDF pump head.

A.5. Provision for 1 unit per train system.

# B. DISSOLVED OXYGEN SENSOR

- B.1.Submerged type sensor with holder.
- B.2. Range 0-20 mg/Li
- B.3.Optical type Sensor

B.4. N

Must have a 4-20ma control connection capability.

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- C. PHOSPHATE TREATMENT SOLUTION AND CHLORINE DOSING PUMPS
  - C.1. Dosing pumps must have a minimum capacity of 8 liters per hour at 5 bars for phosphate treatment solution and 16 liters per hour at 5 bars for Chlorine solution
  - C.2. Dosing pumps are Solenoid type with PVDF pump head.C.3. Provision for 1 unit per train system.

# D. CHEMICAL DOSING TANKS

- D.1. Polyethylene material grade
- D.2. 100 liters capacity with graduation, 6 units
- D.3. With SUS 304 material stand and bracket
- D.4. With an online calibration system.

The Contractor must operate the completed treatment facilities for four (4) months upon start up as system commissioning period and additional six (6) months operating for extended service with no additional cost.

Also includes every week analysis in a third party DENR accredited laboratory for the four (4) months commissioning period. And monthly analysis for the remaining 6 months extended operation.

Contractor must assist CAAP Office for DENR/LLDA Discharge Permit acquisition which includes DENR / LLDA Discharge permit application requirement ( As built, Process Flow, Mechanical Diagram, and Vicinity Map (Signed and sealed), Engineer's Report, and Third Party DENR Accredited Laboratory result of analysis.

Contractor must conduct orientation and training of in-charged CAAP personnel and submit Operation manual (hard copy and soft copy).

Minimum warranty period of two (2) years on all supplied items or facilities, including workmanship to be reckoned after start-up of the system.

# 5.00 PLUMBING WORKS

# 5.01 Piping works

The work includes all materials, labor, equipment/tools and material testing required for the piping works of the Sewerage Treatment Facility including the roughing-in of pipes, installation and attachment to all necessary pumps, provision of pipe fittings, accessories, hangers, support, pipe sleeves, pipe tags, miscellaneous and

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consumables as per approved plans. All materials and workmanship must be approved by the Project In-Charge assigned by CAAP

# 5.02 Storm Drainage System

The work includes all materials, labor, equipment/tools, and material testing required for the storm drainage system. This includes the installation and joining of pipes, provision of pipe fittings, accessories, hangers, support, pipe sleeves, pipe tags, and other miscellaneous items as per approved plans. Additionally, the works involves the provision of gutter drains as specified on the approved Plumbing and Architectural Plans. All materials and workmanship must be approved by the Project In-Charge assigned by CAAP.

# III. INTERCONNECTION PIPING AND LIFTING TANKS

This project involves the interconnection of septic tanks to the sewage treatment facility with the following technical specification requirements:

# A. SEPTIC TANKS CONNECTION TO LIFTING CHAMBER:

A.1. Connection of septic Tank Overflow to nearest Lifting Chamber.

- Sewer pipe S1000 model (minimum of 4" diameter) with proper slope

(at least 0.5%) and bedding.

A.2. Excavation and restoration of the Pipeline area included

A.3 Provision of access manhole for every 10 meters length of pipe for maintenance purposes.

# B. SUPPLY & INSTALLATION OF LIFTING CHAMBER FOR EVERY CLUSTER OF SEPTIC TANKS:

B.1. Lifting Chamber: must be made of concrete with proper SUS 304 manhole

B.2. Lifting Chamber: must be coated with Polyurea waterproofing

B.3. Installation of Lifting Pumps (1 unit running, 1 unit back up) with minimum capacity of 12 cu. Meter per hour at 10 meters TDH, submersible type with proper guide rail for maintenance purposes.

B.4. Pump guide rail brackets must be made of SUS 304 materials including bolts, washers, and nuts.

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B.5. Installation of Electrical Control panel for Transfer pumps which includes MCBs, Contactors, overloads, relays, digital timers, level sensor, switches and indicators, and alarm system.

B.6. Electrical wiring and Conduits must comply with "PHILIPPINE ELECTRICAL STANDARD CODE".

# C. CONNECTION OF LIFTING CHAMBER TO STF MAIN LIFTING TANK:

C.1. Connection of septic Tank Overflow to nearest Lifting Chamber

- Sewer pipe S1000 model (minimum of 6" diameter) with proper slope (at least 0.5%) and bedding.

C.2. Excavation and restoration of the Pipeline area included

C.3 Provision of access manhole for every 10 meters length of pipe for maintenance purposes.

# D. SUPPLY & INSTALLATION OF MAIN LIFTING TANK

D.1. Lifting Chamber must be made of concrete with proper SUS 304 manhole

D.2. Lifting Chamber must apply Polyurea waterproofing, 2mmT

D.3. Installation of Lifting Pumps (1 unit running, 1 unit back up) with minimum capacity of 20 cu. Meter per hour at 10 meters TDH, submersible type with proper guide rail for maintenance purposes.

D.4. Pump guide rail brackets must be made of SUS 304 materials including bolts, washers, and nuts.

D.5. Installation of Electrical Control panel for Transfer pumps which includes MCBs, Contactors, overloads, relays, digital timers, level sensor, switches and indicators, and alarm system.

D.6. Electrical wiring and Conduits must comply with "PHILIPPINE ELECTRICAL STANDARD CODE".

# 1.00 CIVIL/STRUCTURAL WORKS

#### 1.01 Site Works

The work includes the supply of labor and equipment necessary to complete the excavation for the construction of Main Lifting Station and Cluster Lifting Station. The Contractor must provide equipment for hauling and disposal of excavated materials and site cleanup.

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Total Volume for Excavation = 50.23 cu.m.

# 1.02 Concreting Works

The work includes the supply of materials and labor necessary to complete the concreting of Main Lifting Station and Cluster Lifting Station as indicated on the approved plans. The strength of concrete will be 3500psi. Materials to be used and workmanship must be approved by the Project In-Charge assigned by CAAP.

• Total Volume = 21.96 cu.m.

# 1.03 Steel Works

The work includes all materials, labor, and tools/equipment needed to complete the fabrication and installation of all steelworks as indicated on the approved plans. Materials to be used and workmanship must be approved by the Project In-Charge assigned by CAAP.

Total Weight of Steel = 296.35 kgs.

# 2.00 MECHANICAL WORKS

# 2.01 Interconnection of Septic Tank to STF

The work includes the supply of labor, materials, tools and equipment needed to complete the Interconnection of Septic Tank to STF included in the approved plans. This shall also include all necessary piping works (Please refer to plans and specifications).

For the supply and installation of Lifting chamber for every cluster of Septic Tanks:

Installation of Lifting Pumps (1 unit running, 1 unit back up) with minimum capacity of 12 cu. Meter per hour at 10 meters TDH, submersible type with proper guide rail for maintenance purposes.

Pump guide rail brackets must be made of SUS 304 materials including bolts, washers, and nuts.

For the supply and installation of main lifting tank:

- Installation of Lifting Pumps (1 unit running, 1 unit back up) with minimum capacity of 20 cu. Meter per hour at 10 meters TDH, submersible type with proper guide rail for maintenance purposes.
- Pump guide rail brackets must be made of SUS 304 materials including bolts, washers, and nuts.





Installation of Electrical Control panel for Transfer pumps which includes MCBs, Contactors, overloads, relays, digital timers, level sensor, switches and indicators, and alarm system.

The Contractor must operate the completed treatment facilities for four (4) months upon start up as system commissioning period and additional six (6) months operating for extended service with no additional cost.

Also includes every week analysis in a third party DENR accredited laboratory for the four (4) months commissioning period. And monthly analysis for the remaining 6 months extended operation.

Contractor must assist CAAP Office for DENR/LLDA Discharge Permit acquisition which includes DENR / LLDA Discharge permit application requirement ( As built, Process Flow, Mechanical Diagram, and Vicinity Map (Signed and sealed), Engineer's Report, and Third Party DENR Accredited Laboratory result of analysis.

Contractor must conduct orientation and training of in-charged CAAP personnel and submit Operation manual (hard copy and soft copy).

Minimum warranty period of two (2) years on all supplied items or facilities, including workmanship to be reckoned after start-up of the system.

#### 5.00 PLUMBING WORKS

## 5.01 Piping works

The work includes all materials, labor, equipment/tools and material testing required for the piping works of the Interconnection Piping and Lifting Tanks including the roughing-in of pipes, installation and attachment to all necessary pumps, provision of pipe fittings, accessories, hangers, support, pipe sleeves, pipe tags, miscellaneous and consumables as per approved plans. All materials and workmanship must be approved by the Project In-Charge assigned by CAAP.

All scopes of work for this item must be in accordance with the approved plans and specifications. Quality and types of materials must conform to specifications and must be approved by the Project In-Charge of the CAAP prior to installation.

The contractor shall be responsible in providing safety fence, personal protective equipment (PPE) for staffs and workers, and Safety Inspectors or Safety Engineers on site while construction is ongoing. Regular safety reports should be accomplished.

The contractor shall be responsible for all laboratory, material testing, building and safety permits, survey instruments, energization of the building and tapping of waterline to main necessary in the project implementation. All expenses shall be incorporated in the contractor's overhead cost and shall not be considered as pay item.

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> KRISTINA E. ERACHO Records Assistant

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# **TERMS OF REFERENCE**

- 1. The Contractor shall be responsible in the supply, delivery, installation and commissioning of the entire treatment facilities, including labor and materials to treat 260 cubic meter per day domestic wastewater (with additional 20% Safety design volume capacity) of CAAP MAIN OFFICE compound with provision of train 01 and 02 system for maintenance purposes and energy conservation.
- 2. The Contractor must conduct thorough survey on available area for the facility and submit its findings to the CAAP, and must consider all aspects during the construction of the treatment facilities. Failure of submission the result of preliminary study shall be automatically disqualified; Certificate of acceptance of the preliminary study result shall be provided by CAAP as proof.

PARAMETER	UNIT	MAXIMUM REQUIREMENTS
BIOLOGICAL OXYGEN DEMAND (BOD5)	ppm (mg/Li)	20.0
COLOR	PCU	60.0
PH		7.0-8.0
TOTAL SUSPENDED SOLIDS (TSS)	ppm (mg/Li)	10
AMMONIA	ppm (mg/Li)	2.0
SURFACTANT	ppm (mg/Li)	2.0
PHOSPHATE	ppm (mg/Li)	1.0
NITRATE	ppm (mg/Li)	10.0
OIL AND GREASE	ppm (mg/Li)	3.0
FECAL COLIFORM	MPN/100ml	50.0

3. The Sewage Treatment Facility must meet effluent standard as follow:

4. Such facilities must be equipped to enhance safety of the operators, complete with an access means (such as ladders/stairs, pathways/catwalks, & manholes/hatches), handrails, slip resistance surfaces for the operation, maintenance, & repair/troubleshooting procedures;

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- 5. The treatment plant must be constructed with a fully automated operations and a provision of operating the system manually, as the need arises;
- 6. All supplied items & facilities must be brand new and of high-quality materials, including its structural dimensions and specifications must conform to the respective international standards. Certificates from the manufacturer stating the respective equipment delivered/installed are brand new confirming its serial number and model.
- 7. The Contractor must submit monthly progress report and it will be closely coordinated and monitored by the CAAP Design and Build Committee (DBC);
- 8. The electrical and water consumption during construction/fabrication/installation must be shouldered by the Contractor during the construction period;
- 9. All changes in the applicability of the specifications/lay-out during the implementation must be approved by the end-user.
- 10. Commissioning period. The Contractor must operate the completed treatment facilities for four (4) months upon start up as system commissioning period and additional six (6) months operating for extended service with no additional cost.
- 11. Minimum warranty period of two (2) years on all supplied items or facilities, including workmanship to be reckoned after start-up of the system.
- 12. The Contractor must have to implement health, safety & security program for its personnel, materials and equipment during its installation period;
- 13. The Contractor shall conduct enhanced theoretical and actual orientation, and training for technology transfer within the commissioning period for the CAAP Maintenance team assigned personnel;
- 14. The Contractor must prepare and submit to the CAAP the standard as-built plans (signed and sealed), and all related manuals (and/or software) for operation, maintenance repair, and troubleshooting of the treatment plan prior to acceptance of the project;
- 15. The Contractor shall be solely responsible for the accuracy and applicability of all data that will be used in its design and build proposal and services.
- 16. During the construction, fabrication, and installation activities, the Contractor must apply for its own Electricity/Power Service Connection, and Water Service Connection. Or they may opt to apply for a check meter utilizing the existing Power supply located inside the CAAP Main Office Compound. Water for construction purposes may be available from the utility source.
- 17. The project shall be carried out 7days upon the receipt of notice to proceed within the duration herein specified:

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• PERMITTING AND CLEARANCES PERIOD: Note: No Commencing of Construction Period shall be performed not unless all the permits/clearances are prepared, secured, and available.

CONSTRUCTION PERIOD
Including Civil Works, Equipment Installation, Piping, and Electrical

300 CD

• POST CONSTRUCTION PERIOD-100% COMPLETED: (such as evaluation, testing, commissioning period (365) operating days after start up and turned-over ceremony).

365CD

Prepared by:

CHARTEL D. B USTONERA Aerodrome Engineer I, IDDD-ADMS

Recommending Approval:

ARNEL F. BORLADO

Department Manager III, AED-ADMS

Checked by:

RAUL R. CRUCENA

Division Chief III, IDDD-ADMS

Approved:

LT COL-VALENTINO A DIONELA PAF (RET) Assistant Director General II, ADMS

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Records Assistant Central Records & Archives Division