



**GWA RESOLUTION NO. 05-FY2023**

**RELATIVE TO APPROVAL OF A DESIGN SERVICES CONTRACT FOR THE  
ADACAO WATER AND SEWER INFRASTRUCTURE PROJECT, GWA PROJECT  
NO. S22-04-ARP**

**WHEREAS**, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities (“CCU”) has plenary authority over financial, contractual, and policy matters relative to the Guam Waterworks Authority (“GWA”); and

**WHEREAS**, the Guam Waterworks Authority (“GWA”) is a Guam Public Corporation established and existing under the laws of Guam; and

**WHEREAS**, GWA has seven wells in the Adacao, Mangilao area and six of these wells have some of the highest nitrate-nitrogen concentrations on Guam; and

**WHEREAS**, the Safe Drinking Water standard is 10 mg/L and trend analysis conducted by the Water and Environmental Research Institute indicate these seven wells have rising concentrations that are predicted to be in the 5 and 6 mg/L range by 2029; and

**WHEREAS**, nitrate-nitrogen is a sewage component, and with residences surrounding these wells utilizing cesspools or septic tank systems discharging to the groundwater, to halt increases in groundwater nitrate-nitrogen concentration, residences need to be connected to a public sewer system; and

**WHEREAS**, many Adacao customers are served by two-inch diameter water lines that do not meet GWA’s current construction standards and need to be replaced by six-inch and eight-inch diameter water mains; and

**WHEREAS**, to assist GWA in addressing the higher nitrate-nitrogen levels in Adacao, and to help provide essential infrastructure services, to this underserved area and simultaneously provide enhanced water resource protection for customers served by nearby production wells, the

1 Governor allocated Eight Million Six Hundred Thirty-Seven Thousand Four Hundred Dollars  
2 (\$8,637,400.00) of the American Rescue Plan Act (ARPA) to GWA for the design and  
3 construction for the Adacao Water and Sewer Infrastructure project; and  
4

5 **WHEREAS**, GWA advertised the Request for Proposal (RFP-09-ENG-2022) soliciting a  
6 statement of qualification from experienced and qualified engineering firms to provide  
7 engineering design services for the Adacao Water and Sewer Infrastructure Design Services  
8 project; and  
9

10 **WHEREAS**, Request for Proposal (RFP) packages were downloaded by multiple  
11 interested parties, from which GWA received proposal submittals from five (5) engineering  
12 firms before the RFP submittal deadline of June 30, 2022; and  
13

14 **WHEREAS**, the GWA Selection Committee reviewed and evaluated all five (5)  
15 proposals, making a top three (3) ranking list of the most qualified firm (SEE EXHIBIT A –  
16 Evaluation Summary), which indicated Duenas Camacho & Associates, Inc. (“DCA”) as the  
17 highest ranked firm; and  
18

19 **WHEREAS**, the GWA Selection Committee submitted for the General Manager’s  
20 (“GM”) determination of selection, the ranking of firms evaluated from which GWA could  
21 begin scope and fee negotiations with the selected firm (SEE EXHIBIT B – GM  
22 Determination); and  
23

24 **WHEREAS**, after selection, GWA engineering negotiated with DCA on the Scope and  
25 Fees Proposal (SEE EXHIBIT C – Scope and Fee Proposal) for the Adacao Water and Sewer  
26 Infrastructure Design Services, for a total of One Million One Hundred Six-Four Thousand  
27 Three Hundred Twenty-Two Dollars and Forty-Eight Cents (\$1,164,322.48); and  
28

29 **WHEREAS**, GWA Management seeks CCU approval of DCA’s Scope and Fee Proposal  
30 for the Design Services, for a total of One Million One Hundred Six-Four Thousand Three  
31 Hundred Twenty-Two Dollars and Forty-Eight Cents (\$1,164,322.48), plus a ten percent (10%)  
32 contingency of One Hundred Sixteen Thousand Four Hundred Thirty-Two Dollars and Twenty-

1 Five Cents (\$116,432.25), to bring the total authorized funding amount to One Million Two  
2 Hundred Eighty Thousand Seven Hundred Fifty-Four Dollars and Seventy-Three Cents  
3 (\$1,280,754.73); and  
4

5 **WHEREAS**, funding for this project will be from the ARPA Grant funds awarded to  
6 GWA for this project; and  
7

8 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities  
9 does hereby approve the following:

- 10 1. The recitals set forth above hereby constitute the findings of the CCU.
- 11 2. The CCU finds that the terms of the Scope and Fee Proposal as described in  
12 EXHIBIT C are fair and reasonable.
- 13 3. The CCU hereby authorizes the management of GWA to accept the Scope and  
14 Fee Proposal from DCA in the amount of One Million One Hundred Six-Four  
15 Thousand Three Hundred Twenty-Two Dollars and Forty-Eight Cents  
16 (\$1,164,322.48).
- 17 4. The CCU hereby further approves the funding total of One Million One  
18 Hundred Six-Four Thousand Three Hundred Twenty-Two Dollars and Forty-  
19 Eight Cents (\$1,164,322.48), plus a ten percent (10%) contingency of One  
20 Hundred Sixteen Thousand Four Hundred Thirty-Two Dollars and Twenty-  
21 Five Cents (\$116,432.25), to bring the total authorized funding amount to One  
22 Million Two Hundred Eighty Thousand Seven Hundred Fifty-Four Dollars  
23 and Seventy-Three Cents (\$1,280,754.73).
- 24 5. The CCU hereby further approves funding for this project to be from the  
25 ARPA Grant Funds.
- 26 6. The CCU further approves management to duly notify the Public Utilities  
27 Commission that this contract will exceed One Million Dollars  
28 (\$1,000,000.00), and is funded by ARPA Grant Funds.

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1           **RESOLVED**, that the Chairman certified and the Board Secretary attests to the adoption  
2 of this Resolution.

3  
4           **DULY AND REGULARLY ADOPTED**, this 29<sup>th</sup> day of November 2022.

5  
6 Certified by:

Attested by:

7  
8 

9 

10 **JOSEPH T. DUENAS**

**PEDRO ROY MARTINEZ**

11 Chairperson

12 Secretary

13                                   **SECRETARY'S CERTIFICATE**

14           I, Pedro Roy Martinez, Board Secretary of the Consolidated Commission on  
15 Utilities as evidenced by my signature above do hereby certify as follows:

16           The foregoing is a full, true and accurate copy of the resolution duly adopted at a  
17 regular meeting by the members of the Guam Consolidated Commission on Utilities,  
18 duly and legally held at a place properly noticed and advertised at which meeting a  
19 quorum was present and the members who were present voted as follows:

20  
21 AYES:   4            
22 NAYS:   0            
23 ABSENT:   0            
24 ABSTAIN:                                        0          



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27  
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# EXHIBIT A




## GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building 688 Route 15 Mangilao, Guam 96913

July 29, 2022

To: Barbara C. Cruz, P.E.  
Acting Chief Engineer

From: Josephine E. Smith, PMBA   
Chairperson, Consultant Selection Board

Subject: RFP-09-ENG-2022  
Adacao Water and Sewer Infrastructure Design Services  
GWA Project No. S22-04-ARP

The following information is intended to document the evaluation process undertaken for the referenced solicitation:

EVALUATION COMMITTEE MEMBERS	
Name	Title
George J. Watson	Junior Engineer
Gerald N. Gattoc	Junior Engineer
Ryan B. Diaz	Junior Engineer
Peter B. Castro	Water and Sewer Maintenance Supervisor

Offerors	Evaluation Score				Total	Rank
1. Duenas, Camacho & Associates, Inc.	95	96	90	97	378	1
2. GHD	89	93	81	90	353	2
3. SSFM International, Inc.	86	95	76	91	348	3
4. E.M. Chen & Associates, Inc.	78	85	75	94	332	4
5. EMPSCO Engineering Consultants	82	85	66	93	326	5

Scores were evaluated based on the sum of individual scores. The recommendation of the Evaluation Committee is shown in the ranking above.

For your review and approval. Notification letters will be issued thereafter.

Approved by:



Barbara C. Cruz, P.E.

# EXHIBIT B



## GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building 688 Route 15 Mangilao, Guam 96913

### MEMORANDUM

To: Miguel C. Bordallo, P.E.  
General Manager

From: Barbara C. Cruz, P.E.†  
Acting Chief Engineer

Subject: RFP-09-ENG-2022  
Adacao Water and Sewer Infrastructure Design Services  
GWA Project No. S22-04-ARP

Date: August 1, 2022

The Selection Committee has completed all necessary actions for selecting the most qualified consultants for the referenced solicitation. All proposals were reviewed and scored according to the conditions established in the solicitation. The Evaluation Summary is attached for your information.

The committee recommends the following top three (3) firms in order of preference for the project:

1. Duenas, Camacho & Associates, Inc.
2. GHD
3. SSFM International, Inc.

Concurred:

  
\_\_\_\_\_  
Vincent E. Guerrero  
Supply Management Administrator

8/3/2022  
\_\_\_\_\_  
Date

### GENERAL MANAGER'S DETERMINATION

Consultant Firm Selected:

Duenas Camacho & Assoc.

Remarks:

  
\_\_\_\_\_  
Miguel C. Bordallo, P.E.  
General Manager

2022-8-20  
\_\_\_\_\_  
Date



# EXHIBIT C

Website: [www.dcaguam.com](http://www.dcaguam.com)  
Email: [dca@dcaguam.com](mailto:dca@dcaguam.com)

October 21, 2022  
Miguel C. Bordallo, P.E.  
General Manager, Guam Waterworks Authority  
Gloria B. Nelson Public Service Building  
688 Route 15  
Mangilao, Guam, 96913

Attn: George Watson, GWA Project Engineer

Subject: **GWA RFP-09-ENG-2022, Adacao Water and Sewer Infrastructure Design Services**  
**GWA Project No. S22-04-ARP**

Re: **Design Fee Proposal**

Hafa Adai Mr. Watson,

Dueñas, Camacho & Associates (DCA) is pleased to submit the following fee proposal for engineering services on the subject project. The fees were developed in accordance with the draft scope of work submitted to the Guam Waterworks Authority (GWA).

Based on discussions with GWA, it is GWA's intent to portion specific tasks under a time and materials (T&M) effort. These T&M efforts include post-design services, appraisal services, materials, and archaeological services. All other services will be as lump sum. The following table presents a summary of these fees.

Pre-Design and Survey	\$	270,727.00
Design	\$	774,658.98
Time and Materials	\$	118,936.50
Total	\$	1,164,322.48

DCA will provide our updated policy as soon as we receive it from our insurer.

Sincerely,

Kenneth M. Rekdahl, P.E.  
Vice-President  
Dueñas, Camacho & Associates, Inc.

Attachment  
Scope of work  
Fee proposal

### III. SCOPE OF WORK

#### ADACAO WATER AND SEWER INFRASTRUCTURE DESIGN SERVICES

##### A. INTRODUCTION

GWA provides potable water service to most of the island's civilian population, and groundwater from the Northern Guam Lens Aquifer (NGLA) provides about 80% of Guam's drinking water. The water lens is recharged primarily by rainfall infiltrating through the limestone aquifer. The porous nature of limestone increases the risk of groundwater contamination from surface activities, such as cesspools and septic tanks. Discharge from cesspools and septic tanks can percolate through the limestone in northern Guam and reach the water lens. Wastewater from cesspools and septic tanks contain biological and chemical contaminants, including personal care products, medicines, and nitrogen constituents such as nitrate.

In 1962, the U.S. Public Health Service adopted drinking water standards and set the recommended limit for nitrate-nitrogen at 10 mg/L. Groundwater quality is monitored by GWA according to the requirements of Guam Primary and Secondary Safe Drinking Water Regulations (GPSSDWR). The GPSSDWR drinking water limit for nitrate-nitrogen is 10 mg/L. Nitrate-nitrogen can also be considered an indicator of other wastewater constituents that are not listed as a Safe Drinking Water standard, and are therefore, not typically tested for at production wells. Connecting unsewered properties to the public sewer system will protect the NGLA from contamination from onsite disposal systems.

Seven wells in the Adacao, Mangilao area have some of the highest nitrate-nitrogen concentrations on Guam. Nitrate-nitrogen can have an acute health effect, particularly with infants and elderly individuals. The Safe Drinking Water standard is 10 mg/L and the most recent nitrate-nitrogen concentrations for the seven wells are less than half the standard. However, trend analysis conducted by the Water and Environmental Research Institute indicate these wells have rising concentrations are predicted to be in the 6 and 5 mg/L range by 2029. Nitrate-nitrogen is a sewage component and the residences surrounding these wells have cesspools or septic tank systems that discharge to the groundwater. To halt nitrate-nitrogen increases in this area, residences need to be connected to a public sewer system. Installation of 8-inch diameter sewer mains, a lift station, and a 6-inch diameter force main are proposed in the locations identified on the attached map (see Appendix A).

In addition, existing 2-inch diameter water lines southwest of Adacao Elementary School will be replaced with 8-inch diameter water mains to improve water service in the area. Other areas will have 6-inch diameter water mains with multiple connection points to the water system. The locations of existing 2-inch water lines and proposed locations of new water mains are identified on the attached map (see Appendix A).

The goals of this project are:

- (1) Evaluate and design water mains to replace existing or install new water pipe, and reconnect existing customers affected as follows:
  - a. To replace existing 2-inch diameter water lines around Adacao Elementary School with 8-inch diameter water lines and reconnect existing customers,
  - b. To replace remaining existing 2-inch diameter water lines with 6-inch diameter water lines and reconnect existing customers,



- c. To install new 6-inch diameter water lines in identified areas
- (2) Evaluate and design new sewer system as follows:
  - a. To install new 8-inch diameter gravity sewer lines,
  - b. To identify area to build a new sewer pump station (SPS) to receive sewage from new gravity sewer lines to be installed,
  - c. To install a new sewer force main to convey wastewater from the new SPS to an existing gravity sewer line downstream.
- (3) Evaluate and design connections for existing customers within the 200-foot setback of the new gravity sewer lines being installed as follows:
  - a. Work with GWA, CHamoru Land Trust Commission (CLTC), Guam Environmental Protection Agency (GEPA), and Department of Land Management to identify the existing customers and assist in notifying the customers of the changes,
  - b. Conduct surveys as necessary for the design and identification of the utility easements,
  - c. Work with GWA, GEPA, and the identified customers to identify existing septic systems and design the sewer lateral connections to transfer the customers from the private septic to the new public gravity sewer.

## **B. SCOPE OF SERVICES**

The DCA shall comply with the Guam Board of Registration for Professional Engineers, Architects and Land Surveyors (“PEALS”) Law and related laws. Additionally, DCA must provide professional engineering design services consistent with expert qualifications and experience in structural engineering. It may be necessary to procure the services of subconsultant design firms to meet the requirements of this project. GWA reserves the right to review and approve subconsultants.

The scope of consultant services anticipated for this project includes land surveying and archeological investigation, and geotechnical, civil, structural, mechanical, electrical, and instrumentation engineering analysis and design. Contract design drawings shall be completed in AutoCAD 2019 or earlier version, and be able to translate into an ESRI GIS mapping format. Site investigation is necessary to assess the existing water infrastructure, including water lines and active water wells, and nearby gravity sewer lines and manholes, and related structures and components to achieve high quality design solutions and alternatives.

Prospective firms may consider joint venture or subconsultant teaming agreements to ensure that all required services can be performed at a high-quality standard. This experience may include, but is not limited to:

- a) Project Management
- b) Civil
- c) Structural
- d) Mechanical
- e) Geotechnical
- f) Surveying
- g) Electrical Power
- h) Instrumentation & Control
- i) Supervisory Control and Data Acquisition (SCADA)
- j) Archeological and Historical Investigations
- k) Construction Cost Estimating

- l) Scheduling
- m) Permitting
- n) Bidding
- o) Engineering During Construction
- p) Record Drawing (As-Built) Preparation
- q) Public outreach

## **TASK 1 - Project Management**

### **Subtask 1.1 - Project Management Plan**

DCA shall prepare a Project Management Plan that includes:

- a) Project Description
- b) Scope of Work (from contract)
- c) Work Plan
- d) Progress Evaluation
- e) Quality Assurance and Quality Control Plan
- f) Risk Management
- g) Scope Change
- h) Communication Plan
- i) Documentation Plan
- j) Subcontractors and organizational chart

### **Subtask 1.2 - Project Schedule**

DCA shall submit a schedule that meets required milestones for approval. Update schedule at all phases of the project, including monthly meetings, dates for completion of engineering design studies, milestone tasks, monthly invoicing, and dates for review periods. The schedule may include program development (owner's requirements) and environmental permit approvals. The schedule should be based on the proposed target dates. DCA will indicate if the target dates will be accomplished.

### **Subtask 1.3- Progress Reports**

DCA shall Submit monthly progress/status reports to support monthly billings. Reports must reflect monthly invoices and include actual spending curves, projected spending curves, and earned value reporting.

### **Subtask 1.4 – Meetings and Coordination**

DCA will lead regularly-scheduled meetings and coordinate with entities within and, as appropriate, outside the project team. Identify and facilitate milestone meetings. Additionally:

- a) Coordinate and communicate with local and federal agencies as necessary, including but not limited to the Guam Environmental Protection Agency (GEPA), Department of Public Works (DPW), Department of Parks and Recreation (DPR), Department of Land Management (DLM), CHamoru Land Trust Commission (CLTC), US Fish and Wildlife Services (USFWS) throughout the course of the project to ensure review and permitting process adheres to project schedule.

- b) Facilitate and record kickoff and project design review (30%, 60%, 90% and 100%) meetings. The design reviews meeting shall include cost estimates and construction schedule.

**Deliverables:**

- a) Project Management Plan
- b) Project Schedule
- c) Progress Reports
- d) Meeting Minutes

The Task 1 effort is expected to span the entire life of this project, from the contract Notice to Proceed (NTP) date and (if GWA moves forward with repairs/rehabilitation) through post-construction and final commissioning.

**TASK 2 - Preliminary Design**

**Subtask 2.1 - Research and Field Investigation**

DCA shall gather data and conduct a field investigation to identify existing conditions and aid in identifying optimal solutions. Efforts may include, but are not limited to:

- a) Record drawings
- b) Easement locations and property records
- c) Interviews with GWA staff
- d) Discussion and coordination with CLTC, DLM, and GEPA as needed
- e) Lead and work with GWA, CLTC, GEPA (in needed), and Property Owners to evaluate possible sewer connection transfer from privately owned septic/cesspool, as well as connection transfer from existing water main to the upgraded water main to be installed
- f) Perform assessments and other permitting-related activities, as required by the appropriate archaeological and environmental regulatory agencies
- g) Prepare and submit permits as needed for the site investigation work
- h) Conduct field investigations and utility clearances to confirm location and layout of existing utilities within the proposed locations to avoid utility conflicts

**Subtask 2.2 - Easement and Land Acquisition Assistance**

DCA will Research and verification of existing and required new easements/properties is necessary for new water and sewer design. Land acquisition also required for a new pump station. Survey work will be required. Negotiations with private landowners or CLTC might be required. DCA will be responsible for developing the necessary plans for:

- a) determining Right of Way or property boundaries
- b) obtaining new easements,
  - 1. along Lot 35 Tract 14119
- c) revising existing easements,
- d) obtaining property transfers,
- e) assisting GWA with private water and sewer lateral connections
- f) Initial location for the new sewer pump station is assumed to be within the vicinity of 6NEW Block 4 Tract 14411

The DCA will assist GWA in recording of property transfers with the Department of Land Management under the direction of a professional land surveyor licensed on Guam.

### **Subtask 2.3 – Basis of Design Report**

DCA shall Develop a Basis of Design (BOD) Report that will include key information pertaining to any related geotechnical, civil, structural, mechanical, electrical, and instrumentation design criteria, to be submitted for review and approval by GWA. Design will be in accordance with the applicable standards listed Section III.C “Design Parameters” of this RFP. The Basis of Design Report at the minimum shall address the following:

- a) Projected flow rates
- b) Force main to accommodate projected flow rates and pump capacities
- c) Projected hydraulic system curves, pump capacities, electrical demands, and generator requirements
- d) Changes to hydraulic system curves downstream of new sewer system and identification of downstream capacity upgrades, if needed
- e) Current and projected water piping requirements
- f) Proposed locations for water system control valves (PRV, PRSV, etc.)
- g) Water service lateral and fire hydrant reconnections
- h) Sewer service lateral connection considerations for existing home owners on private septic
- i) Geotechnical considerations
- j) Environmental and cultural protection measures
- k) Surrounding infrastructure, utility, and easement considerations
- l) Proposed construction schedule with major work items
- m) Construction Cost Estimates - Develop a Class 4 cost estimate according to the AACE International Cost Estimates Classification System. All cost will be in current US dollars and escalated to the estimated midpoint of construction

### **Subtask 2.31 – Basis of Design Report for New Lift Station**

The following shall be included in the BOD Report: key information pertaining to any related geotechnical, civil, structural, mechanical, electrical, and instrumentation design criteria, to be submitted for review and approval by GWA. Design will be in accordance with the applicable standards listed Section III.C “Design Parameters” of this RFP. The Basis of Design Report at the minimum shall address the following:

- a) Projected flow rates
- b) Consideration/Plan for preferred location using GIS database and taking into consideration existing pump stations, flows and future uses
- c) Force main to accommodate projected flow rates and pump capacities
- d) Geotechnical considerations
- e) Environmental and cultural protection measures
- f) Surrounding infrastructure, utility, and easement considerations
- g) Proposed construction schedule
- h) Review of wet well verses dry well configurations for GWA review and approval
- i) Construction Cost Estimates - Develop a Class 4 cost estimate according to the AACE International Cost Estimates Classification System. All cost will be in current US dollars and escalated to the estimated midpoint of construction

### **Civil**

- a) Identify location for new sewer pump station.
- b) Design new sewer pump station and consider the need for odor control.
- c) Design access road to pump station with proper turn around clearance, so that vehicles can access the pump station easily and safely.
- d) Provide site security measures including, as necessary, surveillance, fencing and lighting.
- e) Provide storm water control and drainage system, as necessary.
- f) Perform structural design and calculation for the pump station structure, support system and containments, as required.

### **Structural**

- a) Provide structural and architectural design in conformance with seismic and wind loads for Guam.
- b) Consider material for wet well longevity, with respect to environmental conditions (e.g., water table elevation and groundwater chloride content).

### **Mechanical**

- a) Design pump station with adequate hydraulic capacity for flow and total dynamic head.
- b) Perform hydraulic calculations and provide all hydraulic information, including pump curves and system curves using Flygt pumps. These pump manufacturers are required, as GWA's critical spare parts inventory consists of Flygt parts.
- c) Design a solids removal system/screening for the pump station with the intention to prevent large solids from damaging pumps.
- d) Design a permanent lifting system within the pump station to lift up pumps for maintenance purposes.
- e) Design pump station to include worker accessibility to controls, pumps, valves, etc. (e.g., valves are not to be placed in the wet well).
- f) Design a ventilation system for the pump station with adequate air changes.
- g) Recommend other components that will improve operation and maintenance efficiency, such as variable frequency drive, solar lighting or reusable materials.
- h) Consider noise, odor, and vibration concerns and solutions.

### **Instrumentation and Control**

- a) Design the pump station with adequate instrumentation, such as flow meter, level sensors, and alarms.
- b) Design interlock between instrumentation and equipment so that the pump station can be operated as HAND-OFF-AUTO.
- c) Design a SCADA compatible pump controller and electrical panel with modem capable of communicating either wireless or by wired data service connection with GWA central data. The design will have an automatic level control. The controller will notify GWA via telephone text of any high-level conditions, pump failures or power outage.

### **Electrical**

- a) Analyze the existing electrical system in the area to determine if an electrical system upgrade is required.
- b) Perform load calculations to size an onsite backup power generator equipped with sound enclosure and fuel containment using Caterpillar generators. Caterpillar generators are

required as GPA maintains these generators, and their inventory of spare parts and components are for Caterpillar generators.

- c) Provide 5 days of fuel storage in an above-ground tank with secondary fuel containment.
- d) Provide power to lighting, motors, SCADA system, instrumentation, as well as other items necessary for the pump station operations
- e) SCADA system for pump station. Include provisions for the location, housing and operations of the SCADA system. A backup dial out system might be required.

**Deliverables:**

Provide deliverables in accordance with GWA Guidelines.

- a) Public easement plat
- b) Environmental assessment report
- c) Geotechnical report
- d) Basis of Design Report
- e) Pre-Design workshop with GWA project team to review approach, methodologies, findings, and determine design basis

**TASK 3 - Design Service**

After the final BODR is approved, the consultant shall perform the following tasks to achieve the Final Design documents. Design shall conform with GWA Design Guidelines.

**Subtask 3.1 - Meetings**

DCA shall conduct monthly (or otherwise specified) design review meetings with GWA to review the design process, each design discipline status and issues, and project schedule. Consultant shall conduct design workshops at each milestone of development at 30%, 60%, 90%, and 100%, and prepare and submit all design review meeting agendas and minutes to GWA project team.

**Subtask 3.2 - Permitting**

DCA shall obtain the required construction permits signatures and approvals ready for construction. In addition, the consultant shall:

- a) Identify all permits required. Assist owner in preparing and obtaining all preconstruction permits. Permitting agencies may include the United States Army Corp of Engineers, Guam Environmental Protection Agency, Coastal Management, Department of Parks and Recreation, and the United States Fish and Wildlife Service.
- b) Comply with the National Environmental Policy Act (NEPA) in accordance with grant conditions.
- c) If required, conduct archival research and preparation of an Archaeological Monitoring and Data Recovery Plan (AMDRP). The Guam State Historic Preservation Office (SHPO) will likely require preparation of an AMDRP prior to any ground disturbance.
- d) Coordinate with relevant agencies such as the Guam Environmental Protection Agency (GEPA), Department of Public Works (DPW), etc. at the 30%, 60%, 90%, and 100% submittals. This includes submitting design documents and maintaining communication throughout the duration of the project and incorporating any relevant regulation requirements in the design.

**Subtask 3.3 - Final Design Documents**

DCA shall:

- a) Coordinate with and incorporate information from Project Manager.
- b) Conduct appropriate boundary and topographic surveys as necessary.
- c) Finalize equipment and instrument list.
- d) Finalize the engineering report developed from the BODR that documents all disciplines design basis, engineering calculation, final cost estimate, control narrative and supportive data. (3 copies).
- e) Prepare progress (30%) plans, specification, Class 2 (AACE) construction cost estimate, and contract documents, conforming to the GWA and Program Management Design Guidelines as to what should be included in this submittal. Additionally, include profiles, by-pass pumping (if required), and traffic control. Three hard copies of the design documents (11"x17" sized drawings) and a digital copy of the design documents are required.
- f) Allow two weeks for GWA to review 30% design. Incorporate adjudicated comments into the design and submit a formal response to each comment.
- g) Prepare progress (60%) plans, specifications, Class 2, (AACE) construction cost estimate, and contract documents, conforming to the GWA and Program Management Design Guidelines as to what should be included in this submittal. Additionally, include profiles, by-pass pumping (if required), and traffic control. Four hard copies of the design documents (1 set of 36"x24" sized drawings and 3 sets of 11"x17" sized drawings) and a digital copy of the design documents are required.
- h) Allow two weeks for GWA to review 60% design. Incorporate adjudicated comments into the design and submit a formal response to each comment.
- i) Prepare progress (90%) plans, specification, Class 1 (AACE) construction cost estimate, and contract documents, conforming to the GWA Design Guidelines. Four hard copies of the design documents (1 sets of 36"x24" sized drawings and 3 sets of 11"x17" sized drawings) and a digital copy of the design documents are required.
- j) Allow two weeks for GWA to review 90% design. Incorporate adjudicated comments into the design and submit a formal response to each comment.
- k) Prepare final (100%) "Issued for Bid" plans, specifications and contract documents, conforming to GWA and Program Management Design Guidelines. Five hard copies of the design documents (2 sets of 36"x24" sized drawings and 3 sets of 11"x17" sized drawings) an AutoCAD 2019, 2020 GWA GIS Mapping and a digital copy of the design documents are required.
- l) Follow all laws of Guam relative to procurements.
- m) Utilize GWA's latest procurement templates and ensure that no conflict exists between the procurement templates and any material or subject in the documents being produced. GWA's templates will control in the event of conflict such as between liquidated damages provisions, payment terms, etc.
- n) Prepare permit applications for all local authorities, highway departments, and other pipeline utilities.
- o) Provide digital copies of the final design documents
- p) All cost estimates shall conform to the guidelines of the Association for the Advancement of Cost Engineering International (AACE). During the design process, Consultant shall immediately notify the GWA when any design decision causes a significant cost increase to the project.
- q) Provide deliverables in accordance with GWA Guidelines. One hardcopy set of submittals and an electronic copy shall be submitted for all deliverables, not previously specified.

- r) Final design drawings shall also be submitted via electronic PDF and AutoCAD 2019 or earlier version.

The design will not be considered complete until all comments have been addressed and the design is completed and submitted to GWA for final approval.

It is anticipated that GWA will use a design-bid-build procurement method. Construction documents must be finalized prior to commencement of the formal bidding process, which has a target start date of September 2023.

#### **TASK 4 - Contract Bidding Support**

DCA shall provide the following services:

- a) Pre-Bid Meeting agenda and sign-in sheets, coordinate and facilitate the meeting with GWA, and record meeting minutes.
- b) Compile request for clarification, provide input or answer questions, and prepare addenda as needed
- c) Attend bid evaluation conference
- d) Review, evaluate and certify bid tabulations
- e) Provide a letter of recommendation for construction contract award.

#### **TASK 5 - Engineering Support During Construction**

DCA shall:

- a) Prepare final (100%) "Issued for Construction" conformed plans and specifications incorporating addenda and changes during the bid phase.
- b) Assist in preconstruction and partnering conferences.
- c) Attend construction meetings when requested.
- d) Review shop drawings, design calculations, samples, test results, and other data required to be submitted by the contractor for conformance with contract documents if requested by the Construction Manager (CM) or as required by specifications.
- e) Evaluate substitution requests to determine acceptability of substitute materials and equipment proposed by contractor if requested by CM or as required by specifications.
- f) If requested, conduct site visit during construction to determine general conformance or ensure compliance with design.
- g) Review contractor submittals, requests for additional information, change orders, schedule of values, and contractor's schedule and provide responses/comments, as necessary.
- h) Perform preliminary and final inspections and submit punch list.
- i) Provide Final Record Drawings based on marked-up construction drawings.

### **C. DESIGN PARAMETERS**

The design shall be in accordance with the applicable criteria and standards of the American Water Works Association (AWWA), the Guam Waterworks Authority (GWA), the United States Environmental Protection Agency (USEPA), Guam Environmental Protection Agency (GEPA), and all parties which have interest in this project. All standards shall be of the most current edition, unless otherwise specified.

- American Water Works Association (AWWA)



- Guam Waterworks Authority (GWA)
- United States Environmental Protection Agency (USEPA)
- Guam Environmental Protection Agency (GEPA)
- Uniform Building Code (UBC)
- International Building Code (IBC)
- American National Standard Institution (ANSI)
- National Sanitation Foundation (NSF)
- American Society for Testing and Materials (ASTM) International
- American Concrete Institute (ACI)
- National Fire Protection Association (NFPA)
- American Association of State and Highway Transportation Officials (AASHTO)
- Other relevant standards

**D. CONSTRUCTION COST LIMITATIONS**

The project shall be designed to permit construction of the complete facility within a construction budget to be provided by the GWA after acceptance of the "Design Criteria". If the consultant during the preliminary cost analysis finds that the improvements cannot be built within the allotted amount, the matter shall be brought to the attention of the General Manager immediately. The General Manager may upon receipt of such notification, authorize a change in scope of materials as required to reduce the estimated construction cost to an amount within the funds available as authorized by law or he may elect to adjust the estimated construction budget. Consultant shall prepare a detailed construction cost estimate for the facility.

**E. DESIGN AND CONSTRUCTION PERIOD**

DCA shall recommend a construction contract period for this facility based upon required completion dates, actual availability of labor, materials, equipment, and shipping. The following tentative schedule shall be finalized after award of this design services contract.

<u>Action Item</u>	<u>Date</u>
Execution of Design Contract, NTP	11/2022
Complete design	9/2023
GWA issue IFB for construction	9/2023
Open bids, evaluate and select apparent low bidder	11/2023
Award contract	1/2024
Notice-to-Proceed to Contractor	1/2024
Anticipated project completion	12/2024

**A1APPENDIX A: LOCATION MAP**



