



GWA RESOLUTION NO. 11-FY2023

**RELATIVE TO APPROVAL OF THE TAMUNING AND MANENGGON RESERVOIRS
CONSTRUCTION MANAGEMENT CONTRACT**

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 is currently working on critical reservoir projects under the 2011 Court Order (“CO”) Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, the Tamuning Reservoir No. 2 and Manenggon Reservoir No. 2 construction bid proposals (IFB-01-ENG-2023) were received on January 20, 2023; and

WHEREAS, GWA has advertised the Request for Proposals (RFP-01-ENG-2023) soliciting statement of qualifications from experienced and qualified engineering firms to provide construction management services for the Tamuning Reservoir No. 2 and Manenggon Reservoir No. 2 construction projects; and

WHEREAS, 12 interested parties registered for the RFP package, from which GWA received proposal submittals from 5 firms before the RFP submittal deadline; and

WHEREAS, the GWA A-E Selection committee reviewed and evaluated the 5 proposals (See Exhibit A – Score Summary) and generated a short list of the top 3 firms with a

1 recommendation to award a contract to the firm Duenas, Camacho, and Associates (See Exhibit
2 B – GM’s Determination); and

3
4 **WHEREAS**, Duenas, Camacho, and Associates and GWA negotiated the price for the
5 construction management services for the Base Bid Construction (Tamuning Reservoir No. 2 and
6 Manenggon Reservoir No. 2) to be provided in the total amount of One Million Eight Hundred
7 Forty Thousand Nine Hundred Twelve Dollars and Ninety-Five Cents (\$1,840,912.95) (See
8 Exhibit C – Scope of Work and Fees); and

9
10 **WHEREAS**, GWA management seeks approval of the fee proposal amount of One
11 Million Eight Hundred Forty Thousand Nine Hundred Twelve Dollars and Ninety-Five Cents
12 (\$1,840,912.95), along with a ten percent (10%) contingency of One Hundred Eighty-Four
13 Thousand Ninety-One Dollars (\$184,091.00), to bring the total authorized funding amount to a
14 maximum of Two Million Twenty-Five Thousand Three Dollars and Ninety-Five cents
15 (\$2,025,003.95); and

16
17 **WHEREAS**, funding for this project will be from the Bond Funds under PW 09-11
18 Water System Reservoirs 2005 Improvements; and

19
20 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
21 does hereby approve the following:

- 22
23 1. The recitals set forth above hereby constitute the findings of the CCU.
24 2. The CCU finds that the terms of the fee proposal submitted by Duenas,
25 Camacho, and Associates are fair and reasonable.
26 3. The CCU hereby authorizes the management to accept the fee proposal from
27 Duenas, Camacho, and Associates, which is also incorporated into this
28 Resolution in its entirety (Exhibit C).
29 4. The CCU hereby further authorizes the management of GWA to enter into a
30 contract with Duenas, Camacho, and Associates, in the amount of One Million
31 Eight Hundred Forty Thousand Nine Hundred Twelve Dollars and Ninety-
32 Five Cents (\$1,840,912.95).

- 1 5. The CCU hereby further approves the total funding amount for this project of
2 One Million Eight Hundred Forty Thousand Nine Hundred Twelve Dollars
3 and Ninety-Five Cents (\$1,840,912.95), along with a 10% contingency of One
4 Hundred Eighty-Four Thousand Ninety-One Dollars (\$184,091.00), to bring
5 the total authorized funding amount to a maximum of Two Million Twenty-
6 Five Thousand Three Dollars and Ninety-Five cents (\$2,025,003.95).
- 7 6. Funding source shall be the following:
- 8 • PW 09-11: Water System Reservoirs 2005 Improvements

9
10 **RESOLVED**, that the Chairman certified and the Board Secretary attests to the adoption
11 of this Resolution.

12
13 **DULY AND REGULARLY ADOPTED**, this 21st day of February 2023.

14 Certified by:

Attested by:

15
16 

17 **JOSEPH T. DUENAS**
18 Chairperson

15
16 

17 **PEDRO ROY MARTINEZ**
18 Secretary

19 **SECRETARY'S CERTIFICATE**

20
21 I, Pedro Roy Martinez, Board Secretary of the Consolidated Commission on Utilities as
22 evidenced by my signature above do hereby certify as follows:

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

27
28 AYES: 5

29 NAYS: 0

30 ABSENT: 0

31
32 ABSTAIN: 0





GUAM WATERWORKS AUTHORITY

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

December 30, 2022

To: Brett E. Railey, P.E.
Acting Chief Engineer

From: Paul Franquez
Chairperson, Consultant Selection Board

Subject: RFP-01-ENG-2023
Construction Management Services for Tamuning and Manenggon Reservoirs
GWA Project No. W14-006-BND

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

EVALUATION COMMITTEE MEMBERS	
Name	Title
Garrett Yeoh	Senior Engineer, P.E.
George J. Watson	Senior Engineer
Calvin Yam	Senior Engineer, P.E.
Ryan Diaz	Associate Engineer

Offerors	Evaluation Score				Total	Rank
1. Duenas, Camacho, & Associates, Inc.	78	85	86	86	335	1
2. SSFM International, Inc.	75	86	70	75	306	2
3. EMPSCO Engineering Consultants	73	77	72	62	284	3
4. E.M. Chen & Associates, Inc.	71	73	69	65	278	4
5. KHLG & Associates, Inc.	61	67	65	56	249	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:

Brett E. Railey, P.E.



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: Brett Railey, P.E. *BR*
Acting Chief Engineer

Subject: RFP-01-ENG-2023
Construction Management Services for Tamuning and Manenggon Reservoirs
GWA Project No. W14-006-BND

Date: December 30, 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. SSFM International Inc.
3. EMPSCO Engineering Consultants

Concurred:

Vincent Guerrero

 Vincent E. Guerrero
 Supply Management Administrator

1/03/23

 Date

GENERAL MANAGER'S DETERMINATION

Consultant Firm Selected:

Duenas Camacho & Associates, Inc.

Remarks:

Miguel C. Bordallo

 Miguel C. Bordallo, P.E.
 General Manager

2023.1.4

 Date



February 3, 2023
 Miguel C. Bordallo, P.E.
 General Manager, Guam Waterworks Authority
 Gloria B. Nelson Public Service Building
 688 Route 15
 Mangilao, Guam, 96913

Attn: Garrett Yeoh, GWA Project Engineer

Subject: **GWA RFP-01-RNG-2023, Construction Management Services for Tamuning and Manenggon Reservoirs**
GWA Project No. W14-0060BND

Re: **Fee Proposal revision 1**

Hafa Adai Mr. Yeoh,

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

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 specialized (M&E) inspection services, laboratory testing, construction management software and GWA Equipment. All other services will be as lump sum. The following table presents a summary of these fees.

Pre Construction	\$36,944.24
Construction	\$1,370,546.59
Expenses	\$18,273.50
Post Construction	\$75,506.09
Expenses	\$2,299.50
GRT	\$79,132.89
Lump Sum Sub-total	\$1,582,702.82
Time and Material	
Procure	\$ 23,000.00
Lab Testing	\$ 40,000.00
M&E Inspection	\$ 60,000.00
GWA Equipment	\$ 50,000.00
Site Monitoring	\$ 50,000.00
Handling	\$ 22,300.00
GRT	\$ 12,910.14
T&M Sub-total	\$ 258,210.14
Grand Total	\$1,840,912.95

February 3, 2023

The construction management fees are based on a construction duration of 485 calendar days with an additional 14 days pre-construction and 30 days of project closeout. Any additional construction days over the 485 calendar days may result in a change order request.

Sincerely,



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

Attachment
Fee proposal

SCOPE OF WORK

Construction Management Services for Tamuning and Manenggon Reservoirs

A. CONSTRUCTION DESCRIPTION:

The consultant will provide construction management (CM) services on behalf of GWA for construction of Tamuning No. 2 and Manenggon No. 2 reservoir construction sites. The project is located at 2 different sites. An additional site at the Access booster pump station may be added to the scope should funding be available.

The following are the general description of water system improvements to be completed at each location:

a. Tamuning No. 2 Reservoir (Base Bid Work)

- Construction of a 3.0 MG concrete reservoir, including piping, vaults, electrical, instrumentation, SCADA, control building, and general site improvements.
- Installation of new water lines from the reservoir along Route No. 10A to Route No. 1 intersection
- Rehabilitation of 1.0 MG Tamuning No.1 steel reservoir

b. Manenggon No. 2 Reservoir (Base Bid Work)

- Construction of a 2.0 MG concrete reservoir, including piping, vaults, electrical, instrumentation, SCADA, control building, and general site improvements.
- Rehabilitation of 2.0 MG Manenggon steel reservoir.
- Demolition of 1.0 MG Pulantat steel reservoir.

c. Access Booster Pump Station (Additive Bid Work)

- Rehabilitation of an existing pump station, including new booster pump system, controller, piping, electrical, instrumentation, SCADA, generator/fuel system, and general site improvements.

B. GENERAL CONSTRUCTION MANAGEMENT (CM) SCOPE OF WORK

The CM will provide all services relating to the daily field observation, inspection, testing, supervision, management, coordination, and compliance monitoring for the construction projects. The projects generally consists of geo-technical ground improvements, construction of pre-stressed concrete tanks conforming to AWWA/ANSI D110 for Type I Wire- and Strand- Wound, Circular Prestressed Concrete Water Tanks (site adapted for each location), installation of new water lines, construction of new vault structures, demolition of existing steel tank, major structural repair of existing steel reservoir, construction of new control buildings, construction and refurbishment of booster pump station, electrical, instrumentation and control, SCADA controls, plus all associated utilities for each site.

The construction management, testing, and field observation services for the tank replacement projects will require general construction management and observation, as well as specialized inspection and testing. The construction management team members shall have demonstratable experience with earthwork, pipe fitting work, concrete tank work, booster pump system work, SCADA work, and all other aspects of this construction project.

In addition to general construction management duties, inspection and testing will include, but not limited to:

- Concrete placement

- Concrete anchors/Adhesive anchoring systems/Expansion bolts
- Grading
- Excavation
- Compaction grouting
- Compaction testing
- Pre-stressing operations
- Concrete cylinder testing
- Shotcrete application
- High strength bolting
- Rebar
- Earthwork/Soil analysis
- Pipe fitting
- Electrical
- Instrumentation
- SCADA
- Hydrostatic testing
- Disinfection
- System commissioning
- Structural repairs (per API-653)
- Steel reservoir coating
- Cathodic protection

In general, the consultant will be the CM as an independent contractor Owner's Representative of GWA whose primary function are to:

- Keep GWA advised and informed as to project progress, schedule, cost, work quality and conformance to project documents.
- Manage the change process.
- Disclose any information relevant to GWA's interest.
- Make proactive recommendations to GWA for action to maintain progress and achieve the project intent, schedule, and budget.
- Act in the best interest of GWA.

The CM shall administer the Contract, except that the CM is not authorized to make any decisions on the behalf of GWA that materially affect the intent of the design or financially obligate GWA in any manner.

Each project team member's resume shall be submitted to GWA for review and approval/rejection prior to start of the construction project. If any of the team member is not performing at GWA's expected professional and technical level, the project team member shall be replaced at GWA's discretion at any time.

The project team shall generally consist of the following members:

- a. Construction Manager/Resident Engineer
 1. This position shall be a registered Guam Professional Engineer
 2. 1 full time position
- b. Project Engineer
 1. This position shall hold an Engineer in Training or Engineering Intern certificate. A registered Guam Professional Engineer is preferred.

2. 1 full time position
- c. Construction Inspectors
 1. 2 full time position
- d. Administrative
 1. 1 full time position
- e. Other staff and subconsultants
 1. As needed
 2. Subconsultants may consist of geotechnical engineering, surveying, concrete testing, special inspections, soil testing, electrical, SCADA, and all other necessary disciplines.

C. PRE-CONSTRUCTION PHASE

1. CM Quality Assurance

The CM will review, record, and comment on submittal on Quality Control Plan submitted by the Construction Contractor. The CM will develop, implement, and maintain a Quality Assurance Plan for civil, structural, electrical, mechanical, and instrumentation elements including specialized work related to the construction of concrete water reservoirs conforming to AWWA/ANSI D110 Type I Wire- and Strand- Wound, Circular Prestressed Concrete Water Tanks.

The CM Quality Assurance shall incorporate all the required testing listed below.

The CM will file contractor certifications: review, file, and submit inspection test results; and assess substantial completion.

Quality assurance will include the following at the minimum:

- Documentation of site conditions prior to beginning construction
- Review of approved submittals from the Contractor prior to fabrication or installation of materials and equipment
- Inspection, observation, and documentation of daily field work
- Monitoring of the Contractor's Quality Control Plan
- In-plant fabrication and/or witness testing at place of manufacture (where applicable)
- Reports and record keeping
- Non-conforming and deficient work resolution process
- Monitoring the Construction Contractor's implementation of their Quality Control Plan
- Complete list of specialized inspections for the tank structure and under tank

The CM is responsible for monitoring the Contractor's compliance with the Contract Documents.

2. Construction Management Plan

The CM will develop and implement the Construction Management Plan (CM Plan) including guidelines for project organization and coordination in the field, standard daily operations, change order procedures, safety, quality, schedule, and cost control. The CM Plan will set forth the procedures and approach for the construction of the project. The CM Plan will serve the CM, the Owner's Representative, and Contractors by defining the project, project team members and their roles, coordination among team members, procedure, key milestones, and schedule constraints. By establishing these parameters early in the project, the CM Plan will help control resources and costs, establish communication and coordination between the CM, Constructor, and GWA.

Deliverables (electronic pdf files and hardcopies):

- Construction Management Plan

D. CONSTRUCTION PHASE SERVICES

The following sections describe the daily duties of the CM team.

1. Project Records and Document Control

These services and tools shall be provided by the CM to ensure that the project is efficiently managed and constructed according to the terms of the Contract and the Request for Proposal. The function is concerned with proper collection and organization of construction documents, gathering data regarding project progresses, producing progress reports, and monitoring time, cost, and quality.

The CM will use a Procore Construction Project Management construction management software to track communication, design documents, construction documents, finances, and reporting.

- Communication documents: Memos, daily inspector logs for both contractor and CM, meeting minutes, and all other relevant documentation
- Construction documents: Submittals, RFIs, testing results, photo logs, special inspection, change orders, corrective actions, punch list, various construction logs, payment applications, wage rate reporting, and all other relevant documentation
- Design documents: Specifications, drawings, permits, bid documents, contract documents, and all other relevant documentation

2. Daily Construction Reports

The onsite inspectors shall maintain a log of material deliveries, daily site production, site condition, field orders, progress photos, material testing, special inspections, documentation of delays, non-conformance, punch lists, and other material and work facts and issues regarding the prosecution of the work. The daily reports and logs shall be available to GWA project team for review at any time via the project management software.

3. Progress Photo Log and Live Video Feed

The CM shall prepare and retain a construction progress photo log in an organized digital album with phases of the project clearly labeled (Procore Construction Management

Software). The photo log shall capture all phases of the project – pre-construction, construction, and post-construction. The photo log shall be digital.

The CM shall provide 24-hour monitoring camera(s) to be installed at each project sites to allow for continuous monitoring of the project work. The camera system will allow for remote view and playback functions.

Deliverables (electronic pdf files and hardcopies)

- Monthly progress videos shall be submitted to GWA.

4. Submittal and Shop Drawings

The CM shall review and act on all submittals required by the Contract documents. The CM shall review and provide comments regarding shop drawings, work drawings, material submittals, traffic control plan, safety plan, demolition plan, and all other submittals for conformance with the Contract documents. CM reviewers shall be competent personnel.

5. Contractor Project Schedules

The CM shall review the Contractor’s work schedule for accuracy and for efficient sequencing of the work. The CM will direct the Contractor to make any changes deemed necessary and coordinate approval of the revised schedule with GWA. Any delays shall be documented and notified to GWA and the Contractor when actual progress is behind schedule. The CM shall adhere to the requirements set forth in the Contract document for contractor project schedule tracking and review.

6. Payment Request

The CM shall receive and process payment requests from the Contractor. Payment requests shall be reviewed compliance with the Contract document and with the actual work completed. Upon completion of the review, the CM shall make any necessary adjustments, certify, and forward the request to GWA for processing of the payment. The CM shall submit their review, recommendation, acceptance, or rejection within 5 working days of receipt from the Contractor.

7. Payroll Report

The CM shall also review any payroll submittals required by the Contract documents including prevailing wage submissions. At the minimum, the Contractor and its subcontractors shall provide bi-weekly pay records for each of its employees on the project. The consultant will also conduct random employee interviews to verify the pay request information. Upon completion of the review, the CM shall require the Contractor to make any necessary adjustments, certify, and forward the payroll report along with the pay request to GWA for processing.

8. Project Meetings

The CM shall schedule, arrange, and conduct conferences and meeting as required for clear communication of the Contract requirements and adherence to project schedules.

The CM shall arrange for a weekly progress meeting with the Contractor and GWA to discuss progress of work, Contract requirements, and other issues related to the administration and prosecution of work. The CM shall prepare meeting minutes for all progress meetings with contractors, sub-contractors, GWA, and all other parties. The meeting minutes shall include action items from week to week until it has been completed.

The CM shall arrange meetings between the Contractor and GWA, and other parties such as GEPA and DPW as necessary to address project issues that require decisions that cannot be made by the CM or to resolve regulatory concerns.

9. As-Built Drawing

Each month, the CM shall review the Contractor's Review drawings to ensure that they are current and capture any deviations from the original plan set.

The CM shall also maintain a separate set of red-line as-built drawing on site. Drawings shall be available for GWA at any time. Monthly as-builts documents shall be uploaded to the project management software system and included in the CM's monthly billing package.

10. Request for Information

The CM shall track all Request for Information and maintain an RFI log. Coordinate receipt of answers from other sources. Provide RFI response with GWA's input regarding any aspect of the Contract documents, which includes the plans and technical specifications.

11. Compliance Monitoring

The CM shall evaluate and ensure Contractor compliance with all local and federal labor laws applicable to the Project. Any violations shall be immediately reported to GWA. Compliance monitoring shall include but not limited to the following:

- Regulations and Laws: Monitor compliance with Territorial and/or Federal laws, regulations, and rules.
- Labor laws: Monitor Contractor and subcontractor procedures to verify legal status of employees on site. Verify bi-weekly compliance with labor requirements for federally funded projects including posting of wage rate schedules at the job site and safety requirements.
- Licensure: Confirm that the Contractor and its subcontractor and their workers have all required licenses and ensure that said licenses are valid throughout the terms of the Contract.
- Permit Compliance: Monitor and track Contractor's compliance in obtaining required permit and approvals.
- Insurance: Review Contractor's insurance documents submitted to GWA for compliance with Contractor requirements. Track insurance documents, ensure insurance is valid throughout the term of Contract and maintain insurance certificate log.

12. Claims and Disputes

The CM shall promptly the GWA regarding any issues that arise during construction of the Project that could result in claims and/or disputes. The CM shall provide the following services to assist GWA with the resolution of claims and disputes:

- Claim Records: Maintain copies of all verbal and written communications, submittals, testimony, photos, and meetings regarding a potential dispute and promptly submit all originals to the Chief Engineer and Attorney for GWA.
- Claims Reviews & Interpretation: Reviews claims submitted by the Contractor, provide GWA with interpretation of Contract drawings and specifications and provide written recommendations to GWA regarding the solution of the dispute. At the outset of the Contract, the CM shall work with the Contractor to provide pricing for equipment, material, personnel, and other relevant considerations as specified in the bid. Prices agreed upon shall be used in any subsequent Change Order. No amounts shall be paid except for actual losses incurred by the Contractor through no fault of their own or for risks not allocated to the Contractor under the bid.

13. Change Order Negotiations and Review

The CM shall prepare independent cost estimates and negotiate change orders with the Contractor subject to GWA approval (final approval of negotiated change orders can only be made by the GWA General Manager).

The CM shall track all change orders and maintain a change order log. Provide change order evaluations, negotiations, and recommendations for approval by GWA. Change orders shall not be made when the Contractor has assumed such risk in the bid. Change orders may include requests for additional payments for differing site conditions and the CM shall utilize the bid document to determine if a change order is warranted. CM shall submit change order requests and supporting documentation to GWA for approval within 5 working days of receipt from the Contractor wherever practical.

The CM shall maintain copies for all approved change orders (originals to be provided to GWA) and ensure that subsequent pay requests accurately represent these change orders. Approved change orders shall be administered by the CM along with other work elements according to the provisions of this scope of work.

14. Construction Monitoring, Special Inspection, and Quality Control Monitoring

The CM team shall provide full time inspection observation and special inspection services at each site to ensure that the work is accomplished in accordance with the Contract documents.

A full time Construction Manager/Resident Engineer shall be assigned to manage all sites and will be at one of the sites during normal working hours unless attending project related meetings or during holidays, vacation, or sick days. The Construction Manager/Resident Engineer shall be licensed professional engineer registered in Guam.

The CM team shall provide full time construction inspector staff at each reservoir site to monitor the construction. The Construction Manager/Resident Engineer and onsite field staff shall have demonstrable experience (satisfactory to GWA) relative to the discipline and type of work being performed. Project field staff shall review project documents, conduct daily observations, special inspections, prepare and submit Daily Observation and Special

Inspection Reports; communicate deficiency issues and resolve with Contractor; and update Non-Compliance log.

In addition to general compliance inspections, the CM shall provide Special Inspections services in accordance with IBC 2009, Chapter 17 (or latest version required by DPW) by a person with demonstrable experience (satisfactory to GWA) related to concrete placement, structural field welding, fielding welding of reinforcement, concrete anchoring, expansion bolts, shotcrete application, high strength bolting, reinforcing steel placement, pre-stressing operations, grading, excavation, backfilling, foundation probing and injection, and other operations that require special inspections. The Special Inspections staff shall be approved by GWA.

The CM team shall have adequate staff to review and inspect work in all disciplines involved in the construction project. The disciplines are the following: civil, structural, mechanical, electrical, instrumentation, and SCADA.

15. Testing (Quality Assurance)

Contractor Testing: Schedule, observe, approve or reject, and document testing required under the Contract to be performed by the Contractor.

Construction Quality Assurance Testing: The CM shall provide, at the minimum, the following CQA testing to monitor the Contractor’s independent testing firm:

SPECIAL TESTING	STANDARD	FREQUENCY
Concrete Tests: <ul style="list-style-type: none"> • Pipe encasement: Inlet piping, outlet piping, overflow piping, drain line piping, wash down piping • Tank foundation • Tank wall • Tank roof slab • Tank column • Tank column footing • Shotcrete • Vaults • Detention basin: footing and walls • Electrical and communication encasement • Electrical and communication hand hold 	ASTM C-39	10% of Contractor’s
Compaction grouting	ASTM C-1019	10% of Contractor’s
Compaction testing: <ul style="list-style-type: none"> • Over Excavation: Bottom of Over Excavation, Type G – Crushed Aggregate, Top of Type H – Drain Rock, Type E – Certification of 	ASTM D-698 ASTM D-6938	10% of Contractor’s

<p>Observation</p> <ul style="list-style-type: none"> • Vaults: First lift, middle lift, and final lift. • Electrical Hand Holes: First lift, middle lift, and final lift • Communication Hand Holes: First lift, middle lift, and final lift • Detention Basin: Footing • Pavement: Ribbon gutter and pavement 		
<p>Soil and Aggregate Analysis</p> <ul style="list-style-type: none"> • Type G – Crushed Aggregate • Type H – Drain Rock • Type E – Pea Gravel • Type I – Backfill Material 	<p>ASTM C-136 ASTM C-117 ASTM C-40 ASTM D-1140 ASTM D-1183 ASTM D-4318</p>	<p>10% of Contractor's</p>
<p>All other required testing for Contract conformance.</p>		

16. Acceptance

The CM shall promptly reject, orally and in writing, any construction work that does not fully comply with Contract documents. Within 24 hours of notification to the Contractor that work elements have been rejected; the CM shall provide a written description of the deficiency to the GWA for concurrence. When concurrence has been obtained, the Contractor shall be directed to correct the work. The CM shall promptly advise the GWA Project Manager if the Contractor fails to correct or remove the defective work.

The CM shall issue written stop work orders to the Contractor and immediately provide GWA with a copy for a portion of or the entire Contract non-compliance issues as follows:

- If condition of work or Contractor actions threatens the health and safety of Contractor personnel, GWA representatives, or public in such cases, stop work orders may be oral depending on the circumstances with written stop work order to follow.
- With prior notification and approval of the GWA Chief Engineer or Project Manager in all other cases.

17. Construction Survey Services (Quality Assurance)

The CM shall conduct survey and field measurements as necessary to verify that the work is located according to the plans and specifications. Changes to the horizontal and vertical alignments and elevations shall be made only with the approval of the GWA Chief Engineer.

- Pipeline Alignments and Location of Structures: Spot check Contractor's construction staking to verify the pipeline alignments and structure locations are as called for on the plan and specifications and in order to ensure that the work and is location within lawful and approved Rights-of-Way and easements.
- Elevations: Spot check with Contractor's elevations for foundations, pads, pipe line inverts, backfill thickness, manholes, and other structures for which vertical elevations is a critical design element.

- Construction Survey Quality Assurance: The CM shall provide, at the minimum, the following CQA survey to monitor the Contractor's independent survey firm:

Under Tank Piping

- a. Inlet piping & top of flange
- b. Outlet piping & top of flange
- c. Over flow piping & top of flange
- d. Drain line piping & top of flange
- e. Wash down piping & top of flange
- f. Ring drain, high points and outlets

Over Excavation

- a. Bottom of over excavation
- b. Top of fine aggregate
- c. Top of drain rock

Tank Foundation

- a. Top of formwork
- b. Top of concrete foundation

Vaults

- a. Top inlet vault footing formwork
- b. Top inlet vault roof slab formwork
- c. Top outlet vault footing formwork
- d. Top outlet vault roof slab formwork
- e. Top drain vault footing formwork
- f. Top drain vault roof slab formwork
- g. Top electrical hand hold
- h. Top communication hand hold

Pavement

- a. Ribbon gutter formwork
- b. Pavement formwork

Water Line

- a. Invert of newly installed pipe
- b. Location of fittings
- c. Utility nodes, such as vertical and horizontal bends in pipes
- d. Exposed utilities
- e. New chambers, manholes, vaults, or structures

Electrical

- a. Top of conduit
- b. Handholds and other electrical vaults

Bench Marks

- a. Establish bench marks on the top of all vaults, top of footing at water height gauge, overflow, drain, and outlet

18. Project Closeout (Punch List and Project Closeout Inspections)

Throughout the construction of the project, prepare and maintain a list of defects and deficiencies in the work which must be corrected by the Contractor prior to final acceptance of work. The list shall be provided to all members of the pre-final and final inspection team. The list shall be revised after inspections to reflect additional items identified during the inspection. Coordinate with the Contractor to ensure that all punch list items have been completed. When all items have been completed, inform GWA in writing recommending that the work be accepted.

Schedule, arrange, and conduct interim, pre-final, and final inspections of work with Contractor, GWA, GEPA, DPW, and other stakeholders in this project.

- Preliminary Inspection: Preliminary inspections shall be arranged as necessary for specific work elements that require the certification and approval of other agencies
- Pre-final Inspection: A pre-final inspection shall be conducted after substantial completion of the work.
- Final Inspection: The final inspection shall be conducted after correction of pre-final inspection punch list items.

19. Train and Warranty Documentation

The CM shall maintain a copy of all startup training and standard maintenance procedures required by the Contract document.

The CM shall maintain a copy of the warranties and compile associated Manufacturer and Contractor warranty documents. Warranty information shall be included in the final project report. All original warranty documents shall be provided to GWA along with Lien Release Information from the Contractor.

20. Equipment

- CM shall purchase and turn over to GWA a new vehicle. The new vehicle shall be selected by GWA.
- CM shall provide GWA team with general office equipment, i.e. computer screens and all other equipment, as needed.

E. POST CONSTRUCTION SERVICES

1. Final Report

The CM shall prepare a final report after written acceptance of the work by GWA. The final report shall include a narrative documentation of all significant design and construction events and issues and shall become a historical record for the project. The Final Report shall include:

- All communication documentation
- All meeting notes and record
- All design documentation
- All construction documentation
- Warranty information
- Operation and maintenance information

- Training information
- Asset management registry
- All files stored in Procore Construction Management software

Deliverables (electronic pdf and CAD files):

- CM Final Report and documents

2. Record Drawings

After the conclusion of the project, the CM shall review and approve the official record drawings prepared by the Contractor. Record drawings shall be marked and sealed by a professional engineer licensed on Guam in accordance with Guam PEALS regulations.

The CM shall also submit a separate set of red line drawings as required in Section D, 9.

Deliverables (electronic pdf files and 3 hard copies):

- Contractor's As-Built Record Drawings
- CM's As-Built Record Drawings

CM FEE PROPOSAL
 Construction Management Services for Tamuning and Manenggon Reservoirs
 GWA Proj No. W14-006-BND

Contract Term: 485 Calendar Days		14 Calendar Days Prior to Construction NTP for CM Services + 425 Calendar Days for Construction + 30 Calendar Days for Close-Out						
Assumed NTP: April 2, 2023		3/20/23 - 4/3/23						
Assumed Contract Completion: TBD		4/3/23 - 7/31/24						
*Start April 3, 2023. 14 Days Prior to NTP		3/20/23 - 4/3/23						
Calendar days		14	485					
Working Days		10	346					
Working Hours		80	2768					
	Principal	Chief Resident Project Representative	Office Engineer-1	Office Engineer-2	Inspector-1	Inspector-2	Document Control	Professional La Surveyor
	\$64.09	\$57.69	\$34.13	\$28.14	\$32.69	\$22.30	\$19.23	\$42.00
A	0	0	0	0	0	0	0	0
TRAINING		0	0	0	0	0	0	0
Total Training Hours		0	0	0	0	0	0	0
B PRE-NTP ACTIVITIES								
1	Review Contract Documents and Contractor's Initial Submittals	4	32	32	12	20	8	12
2	Review Contractor Schedule of Values and Construction Schedule	4	16	20	4	8	8	4
3	Setup project filing system	8	8	8	12	8	8	8
4	Preconstruction Conference and Report	8	8	8	8	24	8	8
5	Initial Photo and Video Documentation	8	8	8	8	8	8	8
6	Permit Process and Review	8	80	80	16	16	80	0
Total Pre-NTP Hours		8	80	80	16	16	80	0
C CONSTRUCTION PHASE								
1	Project Correspondence	160	200	200	40	40	160	160
2	Submittal Reviews	500	500	500	80	80	100	100
3	Requests For Information	300	300	300	150	150	150	150
4	Review Certified Payrolls	100	100	100	16	16	12	12
5	Payment Requests	145	145	145	48	48	24	24
6	Project Meetings	300	300	300	208	208	300	300
7	Monitoring of Compliance with the Contract Requirements	520	520	520	250	250	20	20
8	Change Orders/Claims Disputes	240	240	240	80	80	1950	1950
9	Project Records	120	120	120	40	40	50	50
10	Onsite Inspection and Field Documentation	300	300	300	1800	1800	60	60
11	Non-Conformance Notices	30	30	30	60	60	12	12
12	Survey Services	160	2755	2755	0	2772	2766	12
Total Construction Hours		160	2755	2755	0	2772	2766	12
Total Cont Hours		160	2755	2755	0	2772	2766	12
(Percent of total available hours)		6%	100%	100%	0%	100%	100%	0%

