



CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 30-FY2019

**RELATIVE TO APPROVAL OF CHANGE ORDER NO. 4 FOR THE
CENTRAL GUAM RESERVOIRS DESIGN**

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, 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 CCU approved Resolution No. 21-FY2015 that authorized a funding of Two Million Five Hundred Fifty-Two Thousand Four Hundred Forty-Five Dollars (\$2,552,445.00) plus 10% contingency of Two Hundred Fifty-Five Thousand Two Hundred Forty-Four Dollars and Fifty Cents (\$255,244.50) bringing the total authorized funding to a maximum of Two Million Eight Hundred Seven Thousand Six Hundred Eight Nine Dollars and Fifty Cents (\$2,807,689.50); and

WHEREAS, following CCU approval in Resolution No. 21-FY2015, GWA contracted with GHD in the amount of Two Million Five Hundred Fifty-Two Thousand Four Hundred Forty-Five Dollars (\$2,552,445.00) in May 2015 to provide design services for the Central Guam Reservoirs; and

1 **WHEREAS**, GWA subsequently issued Change Order No. 1 and Change Order No. 2
2 with GHD for additional design services in the amount of Two Hundred Fifty-Five Thousand
3 Two Hundred and Forty-Four Dollars (\$255,244.00);

4
5 **WHEREAS**, in July 2016 the CCU approved Resolution No. 49-FY2016 which
6 authorized an additional Six Hundred Eighty Thousand Five Hundred Forty-Eight Dollars
7 (\$680,548.00) for additional design services to bring the total authorized funding to Three
8 Million Four Hundred Eighty-Eight Thousand Two Hundred Thirty-Seven Dollars and Fifty
9 Cents (\$3,488,237.50); and

10
11 **WHEREAS**, following CCU approval in Resolution No. 49-FY2016, GWA issued the
12 Change Order No. 3 to GHD; and

13
14 **WHEREAS**, GWA engineering has further determine through the course of the design
15 process that additional system improvements associated with the central reservoir project are
16 needed; and

17
18 **WHEREAS**, GWA is requesting for additional design work which includes the
19 following (Exhibit A):

- 20 (1) Task A: Design changes to install a new pump controller unit at the new Hyundai Tank
21 Booster Pump Station,
22 (2) Task B: Design changes to the Chaot No. 1, Chaot No. 2, and Agana Heights
23 Reservoirs SCADA,
24 (3) Task C: Programming of the Chaot No. 1, Chaot No. 2, and Agana Heights Reservoirs
25 SCADA,
26 (4) Task D: Programming of the Manenggon, Tamuning No. 1 (Airport), and Piti
27 Reservoirs SCADA,
28 (5) Task E: Tamuning No. 1 (Airport) Reservoir - Tiyan Booster Pump Station, Sewer Line
29 Rehabilitation, and Water Line Abandonment,
30 (6) Task F: A-23 and A-25 GAC System Additional Design,
31 (7) Task G: Manenggon Reservoir Access Pump Station Additional Design,
32

1 (8) Task H: Additional Structural Design to Increase Tamuning No. 1 Reservoir (Airport)
2 from 2 Million Gallon Capacity to 3 Million Gallon Capacity.

3
4 **WHEREAS**, GWA engineering and GHD negotiated the price for the services to be
5 provided in the amount of Two Hundred Thousand Four Hundred Fifty-Eight Dollars
6 (\$200,458.00); and

7
8 **WHEREAS**, GWA Management is seeking CCU approval of the fee proposal relative to
9 Change Order No. 4 in the amount of Two Hundred Thousand Four Hundred Fifty-Eight Dollars
10 (\$200,458.00) to fund the design services; and

11
12 **WHEREAS**, GWA Management further seeks CCU approval of the total authorized
13 funding for the design contract with GHD, Inc to Three Million Six Hundred Eighty-Eight
14 Thousand Six Hundred Ninety-Five Dollars and Fifty Cents (\$3,688,695.50); and

15
16 **WHEREAS**, funding for this project will be from PW 09-11 Water System Reservoirs
17 2005 Improvements and EE 09-09 SCADA Improvement – Phase 4; and

18
19 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
20 does hereby approve the following:

- 21
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 GHD is fair
25 and reasonable.
 - 26 3. The CCU finds that the terms of the conditions set by GWA relative to
27 commencement of subsequent work activities are fair and reasonable and
28 serve as a measure of Quality Assurance/Quality Control (QA/QC).
 - 29 4. The CCU hereby authorizes the management of GWA to issue Change Order
30 No. 4 in the amount of Two Hundred Thousand Four Hundred Fifty-Eight
31 Dollars (\$200,458.00) (Exhibit A).
- 32

1 5. The CCU hereby further approves the total authorized funding to Three
2 Million Six Hundred Eighty-Eight Thousand Six Hundred Ninety-Five
3 Dollars and Fifty Cents (\$3,688,695.50); and

4 6. Funding source will be CIP PW 09-11 Water System Reservoir 2005
5 Improvements and EE 09-09 SCADA Improvement – Phase 4.
6

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

10 **DULY AND REGULARLY ADOPTED**, this 28th day of May 2019.
11

12 Certified by:

Attested by:

13 

14 

15 **JOSEPH T. DUENAS**
16 Chairperson

17 **MICHAEL T. LIMTIACO**
18 Secretary

19 **SECRETARY'S CERTIFICATE**

20 I, Michael T. Limtiaco, Board Secretary of the Consolidated Commission on Utilities as
21 evidenced by my signature above do hereby certify as follows:

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

25 AYES: 5
26 NAYS: 0
27 ABSTENTIONS: 0
28 ABSENT: 0
29
30



31 ///
32



Exhibit A

May 13, 2019

Mr. Tom Cruz, PE
Chief Engineer
Guam Waterworks Authority
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam 96913

**RE: Change Proposal 10 for PW12-04 Design Services for GWA's Central Water Reservoirs, GWA Project W14-006-BND
Design Changes for SCADA System at Hyundai Pump Station and Agana Heights and Chaot Reservoir Sites and Miscellaneous**

Dear Mr. Cruz:

GHD is pleased to submit this change proposal to amend our Scope of Work and Fee for the above referenced project. This scope of work defines the additional design services GHD will provide in connection with the Design Services for GWA's Central Water Reservoirs Project. Deliverables of the tasks will be amendments to the Tumon 2, Hyundai and Chaot 2 Reservoirs construction project. The additional scope for CP-10 is detailed below. The original project scope will be amended on a lump sum basis per the fees in the table below.

SCOPE OF WORK

Task A – Design Changes for Grundfos Controller at Hyundai Pump Station: GWA requested GHD make design adjustments to the pump controller at the new Hyundai Pump Station to add a package triplex Grundfos controller for the pumps. The current design provides for the pumps to be controlled by the SCADAPak. GWA is requesting the addition of the Grundfos controller to keep consistency between GWA facilities. GWA and the Contractor have requested only a change to the P&ID on sheet J-002 which will be issued as an addendum to the construction drawings that are currently under construction by AIC. No additional Division 1 specifications or front-end documents are included in this scope.

Task B – Design Changes to Chaot and Agana Heights SCADA: See attached SOW from ArcSine dated April 4, 2019.

Task C – Programming of Chaot and Agana Heights SCADA: See attached, revised SOW from ArcSine dated May 8, 2019. The scope of work includes programming for all of the Central Reservoirs project, but only the costs for programming at Agana Heights Reservoir and Chaot Reservoirs are



included in this Change Proposal because they were not included in the SOW for Change Order 3. The remaining of the cost of \$85,000 for the programming at the other sites will be divided by three and covered by GHD, remaining funds from the Water Hydraulic Modeling Data Collection - Barrigada Service Area project, and excess funds from Change Order No. 2 Task P that were not used.

Task D – Programming of Manenggon, Tamuning No. 1, and Piti Reservoirs SCADA: See attached revised SOW from ArcSine dated May 8, 2019.

Task E – Tiyan Booster Pump Station, Sewer Line Repair and Waterline Abandonment: Change Order No. 2 included a task from Change Proposal 4 for the design of additional piping to connect the area west of the airport runways to GWA waterlines. The task assumed that properties along the cliff line would be purchased by DPW and disconnected from an existing GWA waterline. There was a delay in the purchase of these properties. In order to abandon a waterline under the runways and still serve these houses, GHD was requested to design a small booster pump station in Tiyan to boost the pressure. GWA also requested the replacement or repair of the sewer line through GIAA property west of the runways. The work for this task has already been completed.

Task F – Wells A-23 and A-25 GAC System Additional Design: The scope for approved Task A of Change Proposal 9 included piping design for the installation of an existing GAC system at Well A-23 that would treat water from A-23 and A-25. A concrete slab for the relocated tanks was part of the scope. The fee for Task A of Change Proposal 9 was covered by unused fee for the Pulantat Reservoir site. The design has expanded to include sizing of the GAC system, investigation of treatment options, option figures for locations for the GAC tanks, additional piping design, and design of new GAC systems at both sites. The additional work is the scope for this task and has already begun.

Task G – Access Pump Station Additional Design: Amendment 1 provided scope to refurbish the Access Water Booster Pump Station. The fees for the scope were covered by a contingency in the original contract. The scope of Amendment 1 included new pumps, piping, pump system evaluation, possible replacement of electrical, instrumentation, and control equipment. Architectural improvements and replacement of the generator and fuel storage were also part of the scope. GWA requested additional improvements during the design including a roof hatch above the pumps, converting an office to an electrical room, and changing the piping to stainless steel. The scope for this task consists of structural design for the roof hatch, electrical design to move the electrical and controls to the new electrical room, piping design to change to stainless steel pipe, and fuel changes to move the tank to the exterior of the building. The work for this task has already begun and is almost completed.

Task H – Additional Structural Design for 3 MG Reservoir at Tumon (Tamuning) No. 1: The original scope for the Tumon No. 1 site was for the design of a 2.0 MG reservoir. GWA has requested we upsize the reservoir to 3.0 MG. The structural design for the larger reservoir requires more effort and is included in this task. The cost for this task will be deducted from the design budget meant for the relocation of the Tumon No. 1 Reservoir included in Task P of Change Order No. 3.



ASSUMPTIONS AND EXCEPTIONS

- This change proposal only applies to the scope of work. The terms of the original executed agreement still apply.

Our lump sum fees are summarized in the following Fee Schedule:

FEE SCHEDULE FOR ADDITIONAL DESIGN SERVICES

TASKS	TOTALS
Original Contract Amount	\$2,552,445
Contract Amount with CO #1	\$2,675,912
Contract Amount with CO #2	\$2,807,689
Contract Amount with CO #3	\$3,488,237
Task A: Grundfos Controller at Hyundai Pump Station	\$2,500
Task B: Chaot and Agana Heights SCADA	\$20,146
Task C: Programming of Chaot and Agana Heights SCADA	\$24,500
Task D: Programming of Manenggon, Tamuning No. 1 and Piti SCADA	\$55,995
Task E: Tiyan BPS, Sewer Line Repair and Waterline Abandonment	\$20,960
Task F: Wells A-23 and A-25 GAC System Additional Design	\$21,950
Task G: Access Pump Station Additional Design	\$44,861
Task H: Additional Structural Design for 3 MG Reservoir at Tumon (Tamuning) No. 1 – (\$15,000 deducted from Tumon #1 relocation budget)	\$0
Subtotal Cost	\$190,912
Guam GRT (at 5%)	\$9,546
TOTAL CHANGE PROPOSAL COST	\$200,458
AMENDED CONTRACT AMOUNT	\$3,688,695

Work that exceeds the scope of this proposal will be brought to your attention for review, approval and fee adjustment. Work performed will be billed monthly based on the estimated percent complete. We stand ready to provide the professional services necessary to assist GWA in this endeavor.

Sincerely,

Aaron Sutton, PE, ENV SP
Project Manager

Reviewed by,

Eric Penn
Electrical Engineer

Attachments: Task B SOW from ArcSine dated April 4, 2019
Task C and D SOW from ArcSine dated May 8, 2019

Cc: file



GUAM WATERWORKS AUTHORITY
SCADA PHASE A1/CENTRAL RESERVOIRS DESIGN CHANGE
SCOPE OF WORK

ArcSine Project XM1809007

April 4, 2019

INTRODUCTION

This document describes design services to be performed by ArcSine Engineering on behalf of the Guam Waterworks Authority (GWA), as a subconsultant to GHD, for the SCADA Phase A1 project, and the Central Reservoirs project, both under construction as of April 2019.

The following sites are included in this Scope of Work:

- Chaot Reservoir
- Agana Heights Reservoirs

SCOPE

This Task is to develop change documentation to effect the following:

SCADA Phase A1 Project

- Remove Chaot Reservoir from the project.
- Remove Agana Heights Reservoirs from the project.

Central Reservoirs Project

For Chaot, incorporate the SCADA Phase A1 provisions into the Central Reservoirs project. Reconcile RTU approach and depictions, to result in a single new control panel/RTU to be furnished and installed under the Central Reservoirs project. Coordinate and consolidate interconnection. Resolve layout considerations/conflicts.

DELIVERABLES

For each project, develop narrative summaries of the changes, and accompanying drawing packages. To the extent practical, existing Contract Drawings will be neatly handmarked depicting the changes.

The narratives will reinforce that Central Reservoirs' submittals from the Contractor must be integrated, even if multiple drawings are used to depict the Scope.

Provide peer review support to GHD to review GHD's Design Change for Hyundai Reservoir/Pumping Station.

**Central Reservoirs Programming
Scope Of Work**

CHANGE SUPPORT

Provide support to GWA and the respective CM organizations, in negotiating and finalizing the contractual aspects of the changes (price, time, etc.).

DRAFT



**GUAM WATERWORKS AUTHORITY
CENTRAL RESERVOIRS PROGRAMMING**

SCOPE OF WORK

September 20, 2018
Revised November 28, 2018
Revised December 21, 2018
Revised April 4, 2019
Revised April 17, 2019
Revised May 8, 2019

ArcSine Project XM1809007

INTRODUCTION

This document describes programming services to be performed by ArcSine Engineering on behalf of the Guam Waterworks Authority (GWA), as a subconsultant to GHD, for the Central Reservoirs project under construction as of April 2019, and other similar project(s).

The following Central Reservoir's sites are included in this Scope of Work:

- Barrigada Booster Pump Station (and its reservoirs) – New RTU/ programming.
- Hyundai Reservoir and Booster Pump Station (co-located sites) – New RTU/programming.
- Tumon Tank 2 Reservoir – New RTU/programming (including two chlorine analyzers).
- Chaot Reservoir - New RTU/programming (including three chlorine analyzers).
- Agana Heights Reservoirs – New RTU/programming.
- Dero Road PRV (1 PRV and 1 flowmeter) – New RTU/programming.
- Pale San Vitores PRV (2 PRV's and 2 flowmeters) – New RTU/programming.
- St Johns (Marine Corps) PRV (2 PRV's and 1 flowmeter) – New RTU/programming.

Programming and testing for the sites above will be coordinated with the RTU panel builder, CPC.

The following additional sites are included in this Scope of Work, with the Construction Contract structure to be determined.

- Airport Reservoirs (also known as Tamuning No. 1, two reservoirs)
- Piti (one reservoir)
- Manenggan (up to three reservoirs)

Programming and testing for the sites above will be coordinated with the applicable Contractor(s).

TASK 1 - INFORMATION REQUESTS, COORDINATION, AND WORKSHOPS

Central Reservoirs Programming Scope Of Work

1.1 Information Requests

Request the following information:

- Example RTU code and structure, and standards to the extent they are available.
- Example remote site graphical displays and standards developed by the Central SCADA project (Benson/Siemens) to the extent they are available.
- Example control strategy format and standards.
- Latest information on tag naming and identification conventions.
- CPC's favorably reviewed shop drawing submittals.

Also consider responses to CM RFI's authored by ArcSine for the SCADA Phase A-1 project.

1.2 Project Coordination

It is expected that available GWA standards will be minimal. Accordingly, coordinate with the work under the SCADA Phase A-1 project, with the goal of achieving uniformity between the projects, and thus establishing defacto standards. Allow 12 hours.

1.3 Workshop #1 – Overview, Programming and Communications, Testing

Conduct a telephone workshop with project stakeholders; allow two people, 2 hours each. The following are topics to discuss at the workshop:

- Status of Island-wide communications.
- Status of GWA SCADA.
- Communications, general.
- Communications, DNP3 configuration.
- RTU configuration/programming, data types, data mapping, data management.
- Local Graphical Operator Interface.
- Supervisory system (graphics, databases, alarm notification coordination with work at each site).
- Supervisory outputs for use in Water Model.
- Testing, parties involved and their roles, acceptance criteria.

1.4 Ongoing Coordination

Provide ongoing coordination with the Construction Manager (TG Engineers), Contractor, GHD, and GWA via e-mail and telephone over the course of construction, on topics specific to this Scope. Allow 20 hours.

Central Reservoirs Programming Scope Of Work

TASK 2 - PROGRAMMING STANDARDS (NOT INCLUDED)

2.1 Define Approach; Develop Standards

Limited standards exist. Develop and submit the proposed approach to the following items, prior to Workshop #1. Revise following the Workshop, and as-built at project conclusion, as brief standards.

1. RTU program organization.
2. RTU programming techniques.
3. Local graphical operator interface configuration:
 - a. Layout
 - b. Navigation
 - c. Colors
 - d. Animation
 - e. Depictions
 - f. Alarming
 - g. Setpoints
 - h. Passwords/privilege/protection
 - i. Consistency with supervisory layout
 - j. Other display topics
4. Data mapping and structure at the point of demarcation in the RTU (where the communications system "picks up" values).
5. RTU input/output data management:
 - a. Debouncing
 - b. Scaling
 - c. Detection/management on loss of input
 - d. Related topics
6. File naming, file management.
7. Configuration management and recordkeeping (RTU's, communications, instrument scaling, etc.)
8. Other topics as covered in the workshop.

TASK 3 - PROGRAMMING SERVICES

3.1 For existing Barrigada Booster Pump Station Descriptions, assume no existing control descriptions exist and that this Scope of Work will develop them. For all sites included, develop site-by-site, function-by-function Control Descriptions. Submit to GWA for review and approval. Allow one round of revisions, then final submission.

- For each control loop, provide a functional description of the operation of the equipment, signals, and controls shown on the P&IDs and as otherwise included in the project:
 - Include functions depicted or described in the Contract Documents.

Central Reservoirs Programming Scope Of Work

- Include the following within each loop description:
 - ❖ Requirements specific to that loop.
 - ❖ List of ranges, setpoints, timers, values, counters, etc.
- Functions to consider:
 - ❖ Program a "semi-auto" functionality so that sites can run "automatically" when unable to connect to the Island-wide SCADA network. (For various reasons this could occur – Island-wide SCADA network is not configured by the time site is commissioned, nearby router(s) to link the site to the Island-wide network are not available, etc.).
 - ❖ Address functionality/flow totalization at PRV's if communications are down. Totalize flows locally, so upon communications restoration totals are correctly reported.
- If similar loops exist with identical control, such as multiple loops for individual equipment or process units, only develop one loop description, and reference the remaining loops to that loop description.
- Organize loop descriptions with a Table of Contents, page numbers, and footers.

3.2 Program the local PLC and display (OIP) for each site in accordance with the Control Strategies. Apply a structured approach, suitable for later emulation at other GWA projects. All sites are new RTU's and OIP's.

3.3 Prepare written test procedures for factory test off-Island at CPC's facility in Seattle, Washington, for the Central Reservoir's sites.

3.4 For the additional reservoirs, assume no factory testing will be provided. Only field testing will be undertaken.

3.5 Review and mark up screens, developed by others under the Central SCADA project, to cause the screens to be applicable to these sites. Provide Central SCADA Consultant with a tag list to achieve the required handshaking. **Item 3.5 is not included.**

TASK 4 - TESTING AND STARTUP

4.1 Startup Testing Summary

- Develop an overview suitable for distribution to the Contractor's organization and GWA, of startup and testing responsibilities. Reference specification sections. Include also the roles of GWA's programmer (ArcSine), and expected coordination.

4.2 Unwitnessed Factory Testing at ArcSine's Facility:

- Perform in-house unwitnessed factory testing on the RTU's and displays programmed under this Scope of Work.

Central Reservoirs Programming Scope Of Work

- Submit RTU code to CPC for downloading to each site's RTU, for the Central Reservoir's sites.

4.3 Witnessed Factory Testing at Panel Fabricator's Facility (Central Reservoir's sites):

- The Contractor's panel fabricator has responsibility for panel physical construction, including hardwired relay logic. Testing of those functions is under the Contractor's jurisdiction. For programmed functions, under this Scope develop test procedures for factory and field testing.
- Attend witnessed factory testing at the panel fabricator's facility in Seattle, Washington. Allow one person, 5 man-days.
- In the event that project schedule, including panel fabrication and shipping schedules, do not correlate well with program development schedules, factory testing of the automation functions will comprise "best efforts," with ArcSine testing whatever remains unwitnessed at ArcSine's facility.

4.4 Preliminary Electrical Field Tests (Operational Readiness Test, ORT)

- Provide test checklists for the specified Preliminary Electrical Field Tests. The goal will be to have the Contractor conduct the tests, witnessed by the CM and/or GWA, without the programmer present. Tests covered by the programmer's procedure will largely be comprised of end-to-end signal tests, where signal existence is confirmed at the local displays (and at central SCADA, if so available).

4.5 Final Control System Field Tests (Functional Acceptance Tests, FAT):

- Provide testing support on-Island during the Final Control System Field Tests. For the Central Reservoir's sites, assume 1 day each for reservoir and PRV sites, 2 days each for booster pumping stations. Assume Final Control System Field Tests for all sites will occur over a consecutive 2-week period.
- For the additional sites, allow an additional week on-Island, under a separate schedule, to start up and test these sites.
- The automation portion of the test procedures will be developed by ArcSine, as an adaptation of the factory test procedures. The hardwired portion will be by the Contractor. Using these procedures, execute complete testing of the hardwired and programmed logic. Prove out local stand-alone functionality.
- In the event that site commissioning and final testing do not fall on a consecutive 2-week period (Central Reservoirs) or the 1-week followup period (other), the procedures will be developed such that a preliminary first run can be work by the Contractor on his schedule with witnessing by the CM/GWA. Then ArcSine's on-Island work will comprise a revisit by the CM/GWA to verify final testing completion and close out loose ends.
- In cooperation with GPA and its Central SCADA consultant, these procedures will also test functions and data transmissions end-to-end, to the extent practical.

4.6 In conjunction with the FAT's, provide the following on-Island services:

Central Reservoirs Programming Scope Of Work

Item 4.6 is not included.

- Provide training of GWA personnel on site-specific functions. PLC training to include description of PLC parameters and how values are determined. Training will be optimized within the available timeframe.
- During this time, coordinate/facilitate the activities above, assisting the parties in achieving the end-to-end functionality desired.
- Handmark Contractor control-related shop drawings for as-built conditions, as observed by ArcSine in the course of the work. The on-Island time will make best use of ArcSine's staff including as-building these details to the extent possible.
- Mark up control strategies.
- Perform file management, and provide version-controlled final programs for structured storage within the central server environment. Coordinate with GPA, GWA, and GPWA IT.
- Provide a log of setpoints as-installed.
- Submit electronic copy and one hardcopy of the RTU program.
- Allow 2 days, contiguous with the FAT allowance, for the items above.

TASK 5 - AS-BUILT RESULTS (NOT INCLUDED)

- Submit the documents described under Subtask 4.5, as-built.
- Submit RTU program settings sheets, listing parameters, descriptions, and how values are determined.

TASK 6 - PROGRAMMING PLATFORM

Obtain for programming and unwitnessed factory testing purposes, one RTU with a selection of I/O, and one graphical display. Assume these can be made available by the project Contractor.

NOT INCLUDED

1. Programming or testing of network switch, firewall, and Tropos radio.
2. Developing DNP3 philosophies and resulting configurations. This information is the subject of outstanding RFI's for the SCADA Phase A-1 project.
3. Furnishing, installing, and configuring a temporary central SCADA system at GWA's headquarters if the Benson/Siemens SCADA system is not installed/operational at time of commissioning the sites programmed in this Scope of Work.
4. Task 2, Programming Standards, is not included.
5. Screen Coordination (Task 3.5), is not included.
6. Additional on-Island services (Task 4.6), is not included.