



GUAM WATERWORKS AUTHORITY

Gloria B. Nelson Public Service Building • 688 Route 15, Mangilao, Guam 96913 • Tel. (671) 300-6036

Invitation To Bid: IFB-07-ENG-2018
Talofofo Sewer Improvement
GWA Project No. S16-004EPA

Addendum No.: 04

Date: August 7, 2018

All Qualified Bidders:

This addendum is issued to modify the previously issued bid documents and/or given for informational purposes and is hereby made a part of the bid documents. Failure to acknowledge receipt of this addendum shall be grounds for the bidder's disqualification and rejection of the bidder's proposal.

1. Division 00100 - Invitation to Bid and other sections of the bid documents were applicable:

Bid opening has been extended from August 15, 2018 to **3:00 p.m., Wednesday, August 22, 2018.**

Deadline to submit RFI has also been extended until Tuesday, August 14, 2018.

2. Bid Requirements

Discard the previously issued Bid Form in its entirety and replace with the attached revised Bid Form.

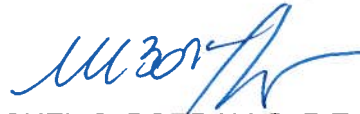
3. Revised Specification(s)

- a. Specifications Table of Contents has been revised and is attached to this addendum.
- b. Specification Section 01 20 00 Payment Procedures has been revised and is attached to this addendum
- c. Specification Section 01 71 13 Mobilization and Demobilization - added specification section and attached to this addendum.
- d. Specification Section 26 00 00 Electrical Work was revised and attached to this addendum.

4. Response to RFI

GWA Request for Information (RFI) Response No. 01 to Contractor Inquiries are attached to this addendum.

Bidders are also notified to visit GWA website: www.guamwaterworks.org to ensure that addenda to the bid, answers to questions, and reminders are communicated to all bidders throughout the solicitation process.



MIGUEL C. BORDALLO, P.E.
General Manager *MCB*

Attachments

MCB;gb

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BID FORM

ARTICLE 1 - BID RECIPIENT

1.01 This Bid is submitted to:

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

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with Buyer in the form included in the Bidding Documents to furnish the Goods and Special Services as specified or indicated in the Bidding Documents, for the prices and within the times indicated in this Bid, and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Buyer.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date

B. Bidder has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided and become familiar with and is satisfied as to the observable local conditions that may affect cost, progress, or the furnishing of Goods and Special Services, if required to do so by the Bidding Documents, or if, in Bidder's judgment, any local condition may affect cost, progress, or the furnishing of Goods and Special Services.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations in effect as of the date of the Bid that may affect cost, progress, and the furnishing of Goods and Special Services.

- D. Bidder has carefully studied, considered, and correlated the information known to Bidder; information commonly known to sellers of similar goods doing business in the locality of the Point of Destination and the site where the Goods will be installed or where Special Services will be provided; information and observations obtained from Bidder's visits, if any, to the Point of Destination and the site where the Goods will be installed or where Special Services will be provided; and any reports and drawings identified in the Bidding Documents regarding the Point of Destination and the site where the Goods will be installed or where Special Services will be provided, with respect to the effect of such information, observations, and documents on the cost, progress, and performance of Seller's obligations under the Bidding Documents.
- E. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution (if any) thereof by Engineer is acceptable to Bidder.
- F. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing the Goods and Special Services for which this Bid is submitted.

ARTICLE 4 - BIDDER'S CERTIFICATIONS

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Buyer, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Buyer of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Buyer, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process.

ARTICLE 5 - BASIS OF BID

5.01 Bidder will furnish the Goods and Special Services in accordance with the Contract Documents for the following price(s):

**GUAM WATERWORKS AUTHORITY
TALOFOFO SEWER IMPROVEMENT
GWA Project No. S16-004-EPA**

BASE BID

Base Bid Description: The base bid item consists but not specifically limited to, installation of new lift station located at Chalan Kanton Ladera Station 1, Leonardo Tenorio Street, and Johnny Taitague Street; complete with wet well, vault, covers, pumps, valves, gravity sewerlines and manholes and new force mains to a new terminal manhole, rehabilitation of existing sewer system complete with appurtenances, installation of new secured fence enclosure with gates at each lift stations, power supply connection to the nearest GPA utility pole and provision to allow quick connect of portable standby power generator with manual switching control during power outages, two towable Generator set and providing temporary bypass and traffic control as required for the improvement of sewer system at Talofoto village.

I. BASE BID - CHALAN KANTON LADERA STREET STATION 1

Pay Item	Description	BASE BID ITEM NO. I			
		Qty.	Unit	Unit Cost	Sub-Total
General Requirements					
1.	Mobilization and Demobilization	1	LS		
2.	Insurance and Bonds	1	LS		
3.	Permits	1	LS		
Civil and Structural Works					
4.	Restoration of Asphalt Concrete Pavement including removal and disposal of existing asphalt.	178	SY		
5.	3" Thick Asphaltic concrete trench patch paving with CSS-1h prime coat, complete.	178	SY		
6.	Installation of new 8" diameter polyvinyl chloride (PVC) gravity main pipe including excavation, sand bedding material, backfill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manhole, hydrostatic testing, disposal and all incidentals complete in place.	21	LF		
7.	New 4" diameter polyvinyl chloride (PVC) forcemain pipe including excavation, sand bedding material, flowable fill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manholes, hydrostatic testing and all incidentals complete in place.	780	LF		
8.	Standard Sanitary Sewer Manhole with 30" manhole frame and cover, precast concrete, including reinforced concrete base, precast concrete riser and cone, flexible pipe seals and connectors, grade adjustment rings, frame and cover, epoxy coating, channeling, testing, temporary	1	EA		

	erosion control measures, traffic control work, incidental and all necessary labor, material and equipment, complete in place.				
9.	2" Combination Air Release Valve including 24" diameter reinforced concrete or polyvinyl chloride (PVC) C-900 stand pipe, 4' depth, concrete footing base, 3/4" gravel, manhole ring and cover, concrete collar and all incidental complete in place.	1	EA		
10.	Concrete valve box, 7ft x 7ft x 4ft interior dimension including basecourse, backfill and compaction, valve box metal frame and cover and all necessary materials, labor and equipment, complete in place.	1	EA		
11.	8' x 8' Concrete masonry wall for Electrical panels including basecourse, wall footing with reinforcement, 4" thick slab on grade with welded wire fabric reinforcing, concrete bond beam and all necessary materials, labor and equipment, complete in place.	86	SF		
12.	New 8' high chainlink fence and double gate including barbed wire, barbed wire extension arm, concrete foundation and all necessary materials, labor and equipment, complete in place.	12	LF		
13.	Wet well concrete collar including basecourse and compaction, reinforcement, concrete, forms and incidental complete in place.	11	SY		
14.	24 Hours Bypass pumping	1	LS		
15.	USEPA and GWA Project signs, complete	2	EA		
	Mechanical & Plumbing Works				
16.	Pre-engineered package type lift station including but not specifically limited to fiberglass wet well, stainless steel guide bars, stainless steel upper guide bar bracket, stainless steel cable holder hook, ladder, integral safe hatch aluminum access cover, easy lift pump retrieval system, vent pipe and all incidental required to complete the work.	1	SET		
17.	New submersible pumps including but not specifically limited to discharge pipe and fittings, check valves, gate valves, start-up testing, training and all incidental required to complete the work.	2	SET		

	Electrical works				
18.	Electrical works including new conduits, boxes, wire gutters, wires, cables and devices, electrical panel, pump controller and software, cellular autodialer, level float switches, level transducer, motion-sensor exterior light, quick connect outlets, manual transfer switch and all incidental required to complete the work.	1	LS		
	TOTAL BASE BID ITEM NO. I (Items 1 through 18)			\$	

II. BASE BID - LEONARDO TENORIO STREET

Pay Item	Description	BASE BID ITEM NO. II			
		Qty.	Unit	Unit Cost	Sub-Total
General Requirements					
1.	Mobilization and Demobilization	1	LS		
2.	Insurance and Bonds	1	LS		
3.	Permits	1	LS		
Civil and Structural Works					
4.	Restoration of Asphalt Concrete Pavement including removal and disposal of existing asphalt.	194	SY		
5.	3" Thick Asphaltic concrete trench patch paving with CSS-1h prime coat, complete	194	SY		
6.	New 8" diameter polyvinyl chloride (PVC) gravity main pipe including excavation, sand bedding material, backfill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manhole, hydrostatic testing, disposal and all incidentals complete in place.	32	LF		
7.	New 4" diameter polyvinyl chloride (PVC) forcemain pipe including excavation, sand bedding material, flowable fill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manholes, hydrostatic testing and all incidentals complete in place.	579	LF		
8.	Standard Sanitary Sewer Manhole with 30" manhole frame and cover, precast concrete, including reinforced concrete base, precast concrete riser and cone, flexible pipe seals and connectors, grade adjustment rings, frame and cover, epoxy coating, channeling, testing, temporary erosion control measures, traffic control work, incidental and all necessary labor, material and equipment, complete in place.	1	EA		
9.	2" Combination Air Release Valve including 24" diameter reinforced concrete or polyvinyl chloride (PVC) C-900 stand pipe, 4' depth, concrete footing base, 3/4" gravel, manhole ring and cover, concrete collar and all incidental complete in place.	1	EA		
10.	Concrete valve box, 7ft x 7ft x 4ft interior dimension including basecourse, backfill and compaction, valve box metal frame and cover and all necessary materials, labor and equipment, complete in place.	1	EA		
11.	8' x 8' Concrete masonry wall for Electrical panels including basecourse, wall footing with reinforcement, 4" thick slab on grade with welded wire fabric	86	SF		

	reinforcing, concrete bond beam and all necessary materials, labor and equipment, complete in place.				
12.	New 8' high chainlink fence and double gate including barbed wire, barbed wire extension arm, concrete foundation and all necessary materials, labor and equipment, complete in place.	12	LF		
13.	Wet well concrete collar including basecourse and compaction, reinforcement, concrete, forms and incidental complete in place.	11	SY		
14.	24 Hours Bypass pumping	1	LS		
	Mechanical & Plumbing Works				
15.	Pre-engineered package type lift station including but not specifically limited to fiberglass wet well, stainless steel guide bars, stainless steel upper guide bar bracket, stainless steel cable holder hook, ladder, integral safe hatch aluminum access cover, easy lift pump retrieval system, vent pipe and all incidental required to complete the work.	1	SET		
16.	New submersible pumps including but not specifically limited to discharge pipe and fittings, check valves, gate valves, start-up testing, training and all incidental required to complete the work.	2	SET		
17.	Electrical works including new conduits, boxes, wire gutters, wires, cables and devices, electrical panel, pump controller and software, cellular autodialer, level float switches, level transducer, motion-sensor exterior light, quick connect outlets, manual transfer switch and all incidental required to complete the work.	1	LS		
	TOTAL BASE BID ITEM NO. II (Items 1 through 17)				\$

III. BASE BID - E. JOHNNY S. TAITAGUE STREET

Pay Item	Description	BASE BID ITEM NO. III			
		Qty.	Unit	Unit Cost	Sub-Total
General Requirements					
1.	Mobilization and Demobilization	1	LS		
2.	Insurance and Bonds	1	LS		
3.	Permits	1	LS		
Civil and Structural Works					
4.	Restoration of Asphalt Concrete Pavement including removal and disposal of existing asphalt.	162	SY		
5.	3" Thick Asphaltic concrete trench patch paving with CSS-1h prime coat, complete	162	SY		
6.	New 8" diameter polyvinyl chloride (PVC) gravity main pipe including excavation, sand bedding material, backfill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manhole, hydrostatic testing, disposal and all incidentals in place, complete in place.	60	LF		
7.	New 4" diameter polyvinyl chloride (PVC) forcemain pipe including excavation, sand bedding material, flowable fill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manholes, hydrostatic testing and all incidentals complete in place.	495	LF		
8.	Standard Sanitary Sewer Manhole with 30" manhole frame and cover, precast concrete, including reinforced concrete base, precast concrete riser and cone, flexible pipe seals and connectors, grade adjustment rings, frame and cover, epoxy coating, channeling, testing, temporary erosion control measures, traffic control work, incidental and all necessary labor, material and equipment, complete in place.	1	EA		
9.	2" Combination Air Release Valve including 24" diameter reinforced concrete or polyvinyl chloride (PVC) C-900 stand pipe, 4' depth, concrete footing base, 3/4" gravel, manhole ring and cover, concrete collar and all incidental complete in place.	1	EA		
10.	Concrete valve box, 7ft x 7ft x 4ft interior dimension including basecourse, backfill and compaction, valve box metal frame and cover and all necessary materials, labor and equipment, complete in place.	1	EA		
11.	8' x 8' Concrete masonry wall for Electrical panels including basecourse, wall footing with reinforcement,	86	SF		

	4" thick slab on grade with welded wire fabric reinforcing, concrete bond beam and all necessary materials, labor and equipment, complete in place.				
12.	New 8' high chainlink fence and double gate including barbed wire, barbed wire extension arm, concrete foundation and all necessary materials, labor and equipment, complete in place.	12	LF		
13.	Wet well concrete collar including basecourse and compaction, reinforcement, concrete, forms and incidental complete in place.	11	SY		
14.	24 Hours Bypass pumping	1	LS		
	Mechanical & Plumbing Works				
15.	Pre-engineered package type lift station including but not specifically limited to fiberglass wet well, stainless steel guide bars, stainless steel upper guide bar bracket, stainless steel cable holder hook, ladder, integral safe hatch aluminum access cover, easy lift pump retrieval system, vent pipe and all incidental required to complete the work.	1	SET		
16.	New submersible pumps including but not specifically limited to discharge pipe and fittings, check valves, gate valves, start-up testing, training and all incidental required to complete the work.	2	SET		
	Electrical works				
17.	Electrical works including new conduits, boxes, wire gutters, wires, cables and devices, electrical panel, pump controller and software, cellular autodialer, level float switches, level transducer, motion-sensor exterior light, quick connect outlets, manual transfer switch and all incidental required to complete the work.	1	LS		
	TOTAL BASE BID ITEM NO. III, Items 1 through 17			\$	

IV. BASE BID - CHALAN KANTON LADERA STREET STATION 2

Pay Item	Description	ADDITIVE BID ITEM NO. I			
		Qty.	Unit	Unit Cost	Sub-Total
General Requirements					
1.	Mobilization and Demobilization	1	LS		
2.	Insurance and Bonds	1	LS		
3.	Permits	1	LS		
Civil and Structural Works					
4.	Restoration of Asphalt Concrete Pavement including removal and disposal of existing asphalt.	42	SY		
5.	3" Thick Asphaltic concrete trench patch paving with CSS-1h prime coat, complete	42	SY		
6.	New 8" diameter polyvinyl chloride (PVC) gravity main pipe including excavation, sand bedding material, backfill, basecourse material and compaction, fittings, warning/ identification tape, cleaning, connection to existing manhole, hydrostatic testing, disposal and all incidentals complete in place.	63	LF		
7.	New 4" diameter polyvinyl chloride (PVC) forcemain pipe including excavation, sand bedding material, flowable fill, basecourse material and compaction, fittings, warning/identification tape, cleaning, connection to existing manholes, hydrostatic testing and all incidentals complete in place.	63	LF		
8.	Standard Sanitary Sewer Manhole with 30" manhole frame and cover, precast concrete, including reinforced concrete base, precast concrete riser and cone, flexible pipe seals and connectors, grade adjustment rings, frame and cover, epoxy coating, channeling, testing, temporary erosion control measures, traffic control work, incidental and all necessary labor, material and equipment, complete in place.	1	EA		
9.	2" Combination Air Release Valve including 24" diameter reinforced concrete or polyvinyl chloride (PVC) C-900 stand pipe, 4' depth, concrete footing base, 3/4" gravel, manhole ring and cover, concrete collar and all incidental complete in place.	1	EA		
10.	Concrete valve box, 7ft x 7ft x 4ft interior dimension including basecourse, backfill and compaction, valve box metal frame and cover and all necessary materials, labor and equipment, complete in place.	1	EA		

11.	8' x 8' Concrete masonry wall for Electrical panels including basecourse, wall footing with reinforcement, 4" thick slab on grade with welded wire fabric reinforcing, concrete bond beam and all necessary materials, labor and equipment, complete in place.	86	SF		
12.	New 8' high chainlink fence and double gate including barbed wire, barbed wire extension arm, concrete foundation and all necessary materials, labor and equipment, complete in place.	12	LF		
13.	Wet well concrete collar including basecourse and compaction, reinforcement, concrete, forms and incidental complete in place.	11	SY		
14.	24 Hours Bypass pumping	1	LS		
	Mechanical & Plumbing Works				
15.	Pre-engineered package type lift station including but not specifically limited to fiberglass wet well, stainless steel guide bars, stainless steel upper guide bar bracket, stainless steel cable holder hook, ladder, integral safe hatch aluminum access cover, easy lift pump retrieval system, vent pipe and all incidental required to complete the work.	1	SET		
16.	New submersible pumps including but not specifically limited to discharge pipe and fittings, check valves, gate valves, start-up testing, training and all incidental required to complete the work.	2	SET		
	Electrical Works				
17.	Electrical works including new conduits, boxes, wire gutters, wires, cables and devices, electrical panel, pump controller and software, cellular autodialer, level float switches, level transducer, motion-sensor exterior light, quick connect outlets, manual transfer switch and all incidental required to complete the work.	1	LS		
	TOTAL BASE BID ITEM NO. IV (Items 1 through 17)			\$	

V. BASE BID - CHALAN AYUYU

Pay Item	Description	ADDITIVE BID ITEM NO. II			
		Qty.	Unit	Unit Cost	Sub-Total
General Requirements					
1.	Mobilization and Demobilization	1	LS		
2.	Insurance and Bonds	1	LS		
3.	Permits	1	LS		
Civil and Structural Works					
4.	Restoration of Asphalt Concrete Pavement including removal and disposal of existing asphalt.	330	SY		
5.	3" Thick Asphaltic concrete trench patch paving with CSS-1h prime coat, complete	330	SY		
6.	New 8" diameter polyvinyl chloride (PVC) gravity main pipe including excavation, sand bedding material, backfill, basecourse material and compaction, fittings, warning identification tape, cleaning, connection to existing manhole, hydrostatic testing, disposal and all incidentals complete in place.	56	LF		
7.	New 4" diameter polyvinyl chloride (PVC) forcemain pipe including excavation, sand bedding material, flowable fill, basecourse material and compaction, fittings, warning identification tape, cleaning, connection to existing manholes, hydrostatic testing and all incidentals complete in place.	1083	LF		
8.	Standard Sanitary Sewer Manhole with 30" manhole frame and cover, precast concrete, including reinforced concrete base, precast concrete riser and cone, flexible pipe seals and connectors, grade adjustment rings, frame and cover, epoxy coating, channeling, testing, temporary erosion control measures, traffic control work, incidental and all necessary labor, material and equipment, complete in place.	1	EA		
9.	2" Combination Air Release Valve including 24" diameter reinforced concrete or polyvinyl chloride (PVC) C-900 stand pipe, 4' depth, concrete footing base, 3/4" gravel, manhole ring and cover, concrete collar and all incidental complete in place.	1	EA		
10.	Concrete valve box, 7ft x 7ft x 4ft interior dimension including basecourse, backfill and compaction, valve box metal frame and cover and all necessary materials, labor and equipment, complete in place.	1	EA		
11.	8' x 8' Concrete masonry wall for electrical panels including basecourse, wall footing with reinforcement,	86	SF		

	4" thick slab on grade with welded wire fabric reinforcing, concrete bond beam and all necessary materials, labor and equipment, complete in place.				
12.	New 8' high chainlink fence and double gate including barbed wire, barbed wire extension arm, concrete foundation and all necessary materials, labor and equipment, complete in place.	12	LF		
13.	Wet well concrete collar including basecourse and compaction, reinforcement, concrete, forms and incidental complete in place.	11	SY		
14.	24 Hours Bypass pumping	1	LS		
	Mechanical & Plumbing Works				
15.	Pre-engineered package type lift station including but not specifically limited to fiberglass wet well, stainless steel guide bars, stainless steel upper guide bar bracket, stainless steel cable holder hook, ladder, integral safe hatch aluminum access cover, easy lift pump retrieval system, vent pipe and all incidental required to complete the work.	1	SET		
16.	New submersible pumps including but not specifically limited to discharge pipe and fittings, check valves, gate valves, start-up testing, training and all incidental required to complete the work.	2	SET		
	Electrical Works				
17.	Electrical works including new conduits, boxes, wire gutters, wires, cables and devices, electrical panel, pump controller and software, cellular autodialer, level float switches, level transducer, motion-sensor exterior light, quick connect outlets, manual transfer switch and all incidental required to complete the work.	1	LS		
	TOTAL BASE BID ITEM NO. V (Items 1 through 17)			\$	

VI. BASE BID - GENERATOR SETS

Pay Item	Description	BASE BID ITEM NO. V			
		Qty.	Unit	Unit Cost	Sub-Total
1.	Towable 60kW diesel Generator Set; with single point lifting eye and four-point tie down system for detaching the generator set and fuel tank from the trailer.	2	EA		
	TOTAL BASE BID ITEM NO. VI				\$

TOTAL BASE BID AMOUNT (Bid items I- VI) \$ _____

(If the Total Base Bid is within the amount of funds available, then the award will be made to the responsive and responsible bidder submitting the lowest Base Bid. In the event the lowest responsive and responsible Base Bid exceeds the available budget, GWA may reject individual Bid Items I-VI until the revised Total Base Bid Amount fits within the available budget. If additional funding is obtained after the contract is executed, any or all deleted Bid items may be restored via Change Order.)

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents. Bidder also acknowledges that each unit price includes an amount considered by Bidder to be adequate to cover Bidder's overhead and profit for each separately identified item.

ARTICLE 6 - TIME OF COMPLETION

6.01 Bidder agrees that the furnishing of Goods and Special Services will conform to the schedule set forth in Article 5 of the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of _____.
- B. List of Proposed Major Suppliers;
- C. Required Bidder Qualification Statement with Supporting Data; and

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner - attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

A Corporation

Corporation Name: _____

State of Incorporation: _____

Type (General Business, Professional, Service, other): _____

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

A Limited Liability Company (LLC)

LLC Name: _____

State in which organized: _____

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

A Joint Venture

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone: _____ Facsimile: _____

E-mail address: _____

Phone and Facsimile Number, and Address for receipt of official communications to Joint Venture:___

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation, and limited liability company that is a party to the joint venture should be in the manner indicated above.)



GUAM WATERWORKS AUTHORITY

Talofoto Sewer Improvement
 GWA Project No. S16-004-EPA
 IFB-07-ENG-2018

RFI Response No. 1 to Contractor Inquiries

This Addendum and/or Response to Request for Information (RFI) is issued to modify the previously issued bid documents and/or given for informational purposes and to the extent the responses below modify the bid documents, please treat them as an amendment to the Bid. The following responses are in response to RFIs received.

REFERENCE	QUESTION/INQUIRY AS SUBMITTED:	GWA RESPONSE:
Questions from July 19, 2018		
1	There are GPA Power line above proposed wet well location. The wet well depth is very deep, so contractor cannot install the pre-engineered FRP wet well. How about changing the wet well material from FRP to precast concrete?	It is NIC, and has been deleted. See Addendum No. 3. Revised Bid Form
2	There is no specification regarding the field office, does it need the field office in job site?	Field office is not required.
3	There is a drop manhole connection and detail shows it mixed with SDR-35 sewer pipe and water pipe fittings. There are no difference of inside and outside diameter on water fittings and sewer pipe. Can we use the all of sewer fitting materials with concrete encasement, that way makes sewer flows smooth.	Refer to drawing Sheet C-2.1; Detail 1 - Drop Manhole/Sewerline Connection Detail; Note No. 2.
4	How much is the inspector overtime cost per hourly?	\$144.00 per/hour Over Time; regular working days \$192.00 per/hour Holidays
5	We need the time to review the addendum No. 1 & 2. Would you please extend the bid date around 10 days from August 3, 2018.	Bid Opening has been extended. See Addendum No. 4

REFERENCE	QUESTION/INQUIRY AS SUBMITTED:	GWA RESPONSE:
Questions from July 23, 2018		
6	Please clarify and confirm what is the size requirement of Portable Generator as per Base Bid # 4 it mentioned to used Towable 60kW Generator Set but on the Specification Section 26 00 00 para 2.14 it mentioned Towable 250 kW Generator Set.	Generator size shall be 60KW; refer to revised specification section 26 00 00.
7	Due to a lead time acquiring a competitive pricing of Engineering Sumpit we are requesting for a four (4) weeks bid time extension.	Bid Opening has been extended. See Addendum No. 4
8	Pls. clarify what exactly pipe category to be used for major middle portions of 4" force main, PVC, C-900 or SDR-35?	C-900
Questions from July 24, 2018		
9	<p>There are as followed problem in pump station location.</p> <ol style="list-style-type: none"> 1. Chalan Kanton Ladera Street Station 1 The wet well is located under the power line. The wet well depth is 15 ft. 2. Leonardo Tenorio Street The wet well is located under the power line. The wet well depth is 25 ft, it is hard to install to lift the pre-engineered Fiber glass wet well. 3. E. Johnny S. Taitague Street The wet well is located with GTA communication line. The GTA pedestal was looked big size, the cable should be big size also. If wet well location is conflict with GTA line, who will pay for relocation cost. 	<p>Build as designed. If site conditions warrant a change in design, a change order may be approved.</p> <p>Build as designed. If site conditions warrant a change in design, a change order may be approved.</p> <p>Build as designed; in the event of unforeseen conflict with existing communication line, cost for re-alignment shall be at GWA expense.</p>
Questions from July 26, 2018		

REFERENCE	QUESTION/INQUIRY AS SUBMITTED:	GWA RESPONSE:
10	Towable 60kW Generator Set which operates on gas fuel supply; with single point lifting eye and four-point tie down system for detaching the generator set and fuel tank from the trailer. There is discrepancy of generator Engine. Bid Schedule shows GAS Engine, but specification shows DIESEL Engine. Which one is correct. It should be the diesel engine generator.	Refer to revised Base Bid Item IV which indicates diesel fuel.
Questions from August 6, 2018		
11	I just wanted to confirm that this project does not have a "Buy America" provision. Also, given the extension for the bid, is there a deadline for RFI's as well?	Buy American Act does not apply to this project. All materials must meet specification requirements. Deadline to submit RFI has been extended until August 14, 2018. See Addendum No. 4
Questions from August 8, 2018		
	Requesting additional time to submit our bid. If possible, can we request time extension from August 15 (Addendum 3) to August 22, 2018 for bond requirements.	See Addendum No. 4

Bidders are also notified to visit GWA website: www.guamwaterworks.org to ensure that addenda to the bid, answers to questions, and reminders are communicated to all bidders throughout the solicitation process.


 MIGUEL C. BORDALLO, P.E.
 General Manager

MCB:gb 

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SECTION 01 20 00

PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 DESCRIPTION:

A. Summary:

1. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
 - a. Coordinate the certified Schedule of Values and certified Application for Payment with, but not limited to, the Construction Schedule, submittal log, and list of Subcontractors.

1.2 DEFINITIONS:

- A. Schedule of Values:** A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 REFERENCES:

- A. General Conditions:** Article 15.

1.4 BASIS OF PAYMENT

The cost of all materials and work required under each section of the technical specifications requires that the contract price (price bid) shall include compensation for all work and materials essential to the items specified in the contract plans and/or specifications, and shall also be measured for payment in accordance with this Section 01 20 00 Payment Procedures.

1.5 SCHEDULE OF VALUES:

- A. Coordination:** Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's

construction schedule.

2. Submit the schedule of values to Engineer through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Division 01 Section "Summary of Work."
- B. Format and Content: Use Contract Documents table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Arrange schedule of values consistent with format to provided by GWA.
 2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - (1) Labor.
 - (2) Materials.
 - (3) Other (i.e. Equipment).
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Contract Documents table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.

- a. Include separate line items under Contractor and principal subcontracts with an amount totaling five percent of the Contract Sum and subcontract amount.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.6 APPLICATIONS FOR PAYMENT:

- A. The following subsections describe the measurement of and payment for the work to be done under the items listed in the BID.

1. Estimates of lump sum items shall be based on a schedule of values dividing each such item into its appropriate component parts together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the Contract price for the item. This schedule shall be submitted by the Contractor for and must have the acceptance of the Owner's Representative before the first estimate becomes due. Submit the schedule of values in accordance with the General Terms and Conditions.

- B. Each unit or lump-sum price stated in the BID shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications, including cleaning up.

- C. If changes are made in the design based on the drawings and specifications as issued, and should such changes increase or decrease the quantity of work to be done adjustment will be made in accordance with the General Terms and Conditions.

- D. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Owner's Representative and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, Monthly Application for Progress Report, and final Application for Payment involve additional requirements.

- E. Payment Application Times: The period of Work covered by each Application for Payment is the payment date for each progress payment as specified in the General Conditions. The period covered by each Application for Payment is the previous month.

- F. Application for Payment Forms: Use Owner provided forms for the Application for Payment.

- G. Application Preparation: Complete every entry on the form. Include execution by a person authorized to sign legal documents on behalf of Contractor. Incomplete applications may be returned without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

- H. Transmittal: Submit a minimum of two (2) notarized and signed, original copies of each certified Application for Payment to the Owner's Representative. All copies shall be complete, including releases, certified payroll and similar attachments.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to Owner's Representative.
 2. Utilize AIA documents G702 and G703. If a spreadsheet software was used for preparing the G703, include an electronic copy of the document in the transmittal.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include, but are not limited to, the following:
1. Certified schedule of values.
 2. List of principal suppliers and fabricators.
 3. Worker Compensation certificates, if applicable.
 4. Auto Insurance, if applicable.
 5. Construction schedule.
 6. Submittal schedule.
 7. Emergency contact list.
 8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
- J. Application for Payment at Substantial Completion: After Owner's Representative issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

Documentation include, evidence of all the following:

- a. Removal of temporary facilities and services.
- b. Removal of surplus materials, rubbish, and similar elements.
- c. Owner training and orientations.
- d. Change over information related to Owner occupancy, use, operation, and maintenance.
- e. Final cleaning.

- e. Ensure that incomplete Work will be completed without undue delay.
 - f. Notice on shifting insurance coverage.
 - g. List of defective Work, recognized as exceptions to certificate of Substantial Completion.
 - h. Each item of electrical and instrumentation installed or modified under this Contract have been tested to demonstrate compliance with the performance requirements of this Contract, including successful functional testing, performance testing and facility commissioning.
 - i. All operating, maintenance manuals and as-built drawings have been provided to the Owner.
 - j. All spare parts and materials have been provided to the Owner.
 - k. All warranty certificates and test results have been provided to the Owner.
 - l. The Contractor has provided instructions and training to the Owner's staff to enable the Owner to operate the Works.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
- 1. Evidence of completion of Project closeout requirements.
 - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - 3. Updated final statement, accounting for final changes to the Contract Sum.
 - 4. Evidence that claims have been settled.
 - 5. Final liquidated damages settlement statement.
 - 6. Completion of final punch list items.
 - 7. Delivery of extra materials, products and or stock.

8. Operating and maintenance instruction manuals.
9. Consent of surety to final payment.
10. Waivers and releases.
11. Warranties, guarantees and maintenance agreements.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION

SECTION 01 71 13

MOBILIZATION AND DEMOBILIZATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Mobilization shall consist of preparatory work and operation, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, and other temporary facilities necessary for work on the project; and for all other work and operations which must be performed, or cost incurred, prior to beginning work on the various items on the project site.

The Contractor shall include installation of GWA project sign per detail as shown in Section 00900 Procurement Checklist and Appendices, Appendix L, Project Signs. Owner or Resident Project Representative will approve the project sign.

- B. Demobilization shall consist of movement of personnel and the removing and disposing of all equipment, materials, and supplies remaining upon completion of the work.
- C. Costs of Mobilization and Demobilization shall be listed as separate line items in the Contractor's Bid for the Project.

The maximum proposal allowed for mobilization and demobilization is an amount not to exceed ten (10) percent of the total original contract amount in the Proposal Schedule, excluding the proposal price of this item. If the proposal submitted indicates an amount in excess of the allowable maximum; "Sum of All Items" in the proposal schedule shall be adjusted to reflect any such reduction. For the purpose of comparing proposals and determining the contract price to be inserted in the contract awarded to the proposer, if any is so awarded, the "Sum of All Items" adjusted in accordance with the foregoing shall be used and the proposal shall be deemed to have been submitted for the amounts as reduced and adjusted in accordance herewith.

Mobilization and demobilization will be paid for on a lump sum basis, which shall be full compensation for all cost of mobilizing and demobilizing of equipment, materials, supplies, and personnel for the project.

Partial payments will be made as follows:

1. When 10 percent of the original contract amounts for the respective bid schedules is earned 35 percent of the amount for mobilization and demobilization will be paid.
2. When 25 percent of the original contract amounts for the respective bid schedules is earned, 60 percent of the amount bid for mobilization and demobilization will be paid.
3. When 100 percent of the original contract amounts for the respective bid schedules is earned, and when the Owner and his Representative are satisfied that the Work has been fully completed, 100 percent of the amount bid for mobilization and demobilization will be paid.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 26 00 00

ELECTRICAL WORK

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

Work specified in this section shall include, but not be limited to the following:

- A. Distribution system, including metering equipment, panelboards, overcurrent protection devices, and feeders.
- B. Complete electrical system wiring including branch circuits, luminaires, switches, receptacles, outlets and control devices.
- C. Complete night light control system, including time switches and lighting contractors.
- D. Empty raceways for telephone and data/SCADA distribution systems.
- E. Power wiring for electrically-operated equipment and appliances.
- F. Complete emergency power system, including portable emergency engine generator, cord and plug connector, distribution system and accessories.
- G. Include in the bid and pay for the charges levied by the utility companies.
- H. Include in the bid and pay for the permits, inspection fees and deliver the certificate of final inspection to Govt.
- I. Testing.
- J. As-built drawings on reproducible mylar.
- K. Demolition work.

1.2 REFERENCES

Comply with the applicable requirements of the following standards unless otherwise indicated:

- A. Comply with local ordinances; National Electrical Code; applicable regulations of the National Board of Fire Underwriters; specifications of ANSI, NEMA, UL, EEI, and IPCEA; and

regulations of the Department of Public Works.

- B. Comply with requirements and regulations of electric, and telephone.
- C. In the event of conflict between pertinent codes and regulations, and the requirements of the referenced standards, or those indicated in Specifications and on drawings, the provisions of the more stringent shall govern.

1.3 SUBMITTALS

Submit shop drawings and catalog cuts of the following equipment for approval in accordance with SUBMITTALS section. Each submittal shall be prepared with a summary sheet attached to each copy identifying all items included in the submittal. Incomplete submittals and those without summary sheets will be returned without review.

- A. Panelboards.
- B. Overcurrent protection devices.
- C. Safety switches.
- D. Luminaires and lamps.
- E. Devices (light switches, receptacles) and device plates.
- F. Cable connectors.
- G. Large boxes and cabinets.
- H. Portable emergency engine generator, trailer mounted with accessories.
- I. Power Receptacle
- J. Automatic control devices. (Time switches and lighting contactors in cabinets, relays, etc.)

1.4 DELIVERY, HANDLING AND STORAGE

- A. Deliver all materials of this Section in manufacturer's original unopened packages or containers with label intact and legible.
- B. Use means necessary to protect the materials of this section before, during and after installation; to protect the installed work and materials of all other trades; and to protect the original structure, work and materials of the Owner.

- C. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.5 WARRANTY

- A. Installation shall be complete in every detail as specified and ready for use. Any items supplied by Contractor developing defects of design, construction, or quality within one (1) year of final acceptance by Engineer shall be replaced by such new materials, apparatus or parts to make such defective portion of the complete system conform to the true intent and meaning of the Drawings and Specifications at no additional cost to the Owner. Lamps shall be warranted for fifty (50) percent of rated lamp life.
- B. The warranty shall be countersigned by the General Contractor.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Asbestos Prohibition: No asbestos containing materials shall be used under this section. The Contractor shall insure that all materials incorporated in the project are asbestos-free unless specifically approved in writing by the Engineer.

2.2 GENERAL

- A. Materials shall be new and those items listed by the Underwriters' Laboratories shall bear "UL" label of approval.
- B. Brand names, manufacturer's names and catalog numbers indicate standard of design and quality required. Acceptable manufacturers for electrical apparatus include General Electric, Gould/ITE, Square D, and Cuttler Hammer. All apparatus supplied shall bear the name of the approved manufacturer on its nameplates. Substitute materials may be used if pre-qualified prior to bidding by the Engineer.
- C. Electrical equipment and luminaires shall be supplied through the manufacturer's designated representative by a local distributor.
- D. Proof of compliance shall be furnished when shop drawings are submitted.
- E. Where two or more similar type items are furnished, all shall be of the same manufacture, e.g., safety switches shall be of the same manufacturer unless otherwise noted.

2.3 RACEWAYS

- A. Rigid Conduit: Rigid steel, zinc-coated inside and outside, or aluminum, for use with threaded fittings.

- B. Intermediate Metal Conduit (IMC): Rigid steel, zinc- and chromate-coated inside and outside, for use with threaded fittings.
- C. Electrical Metal Tubing (EMT): Thin walled steel tubing, zinc-coated.
- D. Flexible Metal Conduit: Flexible steel conduit; zinc-coated inside and outside, smooth inside walls, liquid-tight with factory fittings for liquid-tight installation. Provide bushings with bonding jumper lugs for flexible conduit in excess of six feet in length.
- E. Plastic Conduit: Polyvinyl chloride, Schedule 40. Provide a separate green equipment grounding conductor.

2.4 BOXES

- A. Outlet and Small Junction Boxes: Nominal 4 inches square, 2-1/8 inches minimum depth exclusive of plaster ring, pressed steel, galvanized for corrosion protection. Exposed boxes and boxes exposed to the weather shall be cast steel, type FD. Provide compatible boxes for surface metal raceways.
- B. Extension Rings for Outlet Boxes: Pressed steel, zinc-coated for corrosion protection.
- C. Boxes Larger Than 4 Inches Square: Fabricated from NEC grade steel, hot-dip galvanized, prime painted and finished to match adjacent architectural elements.

2.5 CABINETS

- A. Fabricated from NEC grade steel with hinged door and lockable latch, galvanized for corrosion protection, finished to match panelboards for surface of flush mounting and size as shown on Drawings.
- B. Signal cabinets shall be equipped with 3/4-inch thick termite treated plywood backboards.
- C. All cabinets for power systems (i.e., panelboards, relay cabinets, etc.) shall be keyed alike. All cabinets for signal systems shall be keyed alike, but differently than power system cabinets.

2.6 CONDUCTORS

- A. Solid or stranded copper, sizes according to American Wire Gauge Wire, as shown on Drawings and #12 AWG minimum unless otherwise indicated. Stranded conductors only for #8 AWG and larger. All wiring shall be color coded.
- B. Branch Circuits: Type TW, THW and THWN.

- C. Luminaire Wires: Per NEC.
- D. Conductors Larger than #8 AWG: THW, THWN or XHHW.
- E. Conductors for Equipment Connection: Stranded flexible type.

2.7 WIRING DEVICES

- A. Switches: Ivory, 20A, 120/277V, non-mercury quiet type specification grade.
- B. Duplex Convenience Receptacles: Ivory, 15A, 125V, specification grade, grounding type, unless otherwise noted.
- C. Other Receptacles: Specification grade, ratings and NEMA configuration as indicated.
- D. Ground Fault Circuit Interrupters:
- E. Receptacle Type: Similar to duplex convenience receptacle except UL listed per UL 943 with 5 milliampere ground fault sensing circuit. Feed-through type with test and reset buttons.

2.8 DEVICE PLATES

- A. Specification grade Ivory plastic, smooth face.
- B. For Exterior Use: Flip-open covers, high-grain non-metallic, plastic or fiberglass. Color to match adjacent finish.

2.9 CONTROL EQUIPMENT

- A. Time Switch: Shall be equipped with a self-starting synchronous drive motor, an astronomic dial calibrated for 21 degrees north latitude, an electrically wound carry-over spring mechanism providing a minimum of 10 hours of operation during periods of power outages. Time switch shall be 2-pole with 120 and/or 277 volt timing motor and contact ratings as required to match lighting circuit, 60 cycles, with 40 ampere contacts. Time switch shall be equipped with manual type bypass switch and shall be housed in a NEMA 1 enclosure.
- B. Lighting Contactors: 20A contacts, coil voltage to match lighting circuit voltage, NEMA 1 enclosure, number of poles as required. Electrically held, Square D Class 8903.

2.10 PANELBOARDS

- A. Mounting, voltage rating, main bus capacity, breaker complement and lugs as specified on drawings, complete with housing, door, trim, lock and typewritten circuit directory. Loadcenters shall be provided with flat door and trim and directory. Provide ground bus for all panels. Provide isolated ground bus where indicated.

- B. Panelboards should have copper bussing with bolt-on, molded case circuit breakers. Provide 1-inch-per-pole breakers, half-size breakers not allowed. Circuit breaker complement short circuit ratings shall be fully rated. Use of series rated equipment will not be permitted.
- C. All locks shall be common-key type. Furnish 10 sets of keys to Owner.
- D. Panel housing and entire circuit breaker complement shall be of the same manufacture.

2.11 CIRCUIT BREAKERS AND SAFETY SWITCHES

- A. Circuit breakers, unless otherwise shown, shall be molded case, toggle mechanism operated, with no-fuse ambient-compensated thermal-magnetic overload automatic trip units for overcurrent and short-circuit protection, interchangeable trip units when available and contacts rated to interrupt short-circuit currents as specified on Drawings. Non-automatic breakers shall have short circuit withstand ratings as specified on Drawings. Provide shunt trip and key interlocking accessories where indicated. Multi-pole breakers shall have single, common operating handle for all poles.
- B. Safety switches shall be heavy-duty grade, horsepower rated and sized as indicated or as to match branch circuit overcurrent device rating. Fused switches shall have rejection clips for the type of current limiting fuses utilized.
- C. Enclosures for breakers and switches to be NEMA 1, for interior locations and NEMA 3R for exterior locations.

2.12 LUMINAIRES

- A. Luminaires, lamps and mounting accessories shall be provided as indicated on the drawings. Provide earthquake clips for recessed luminaires in seismic zones 2 and up.
- B. Fluorescent ballasts shall be "A" sound rated, Class P and ETL-CBM certified. All ballasts shall be high power factor energy saving electronic type with automatic thermal overload reset producing full lamp lumen output and compatible with reduced wattage lamps.
- C. Fluorescent lamps shall be lite white unless otherwise noted, 2900 initial lumens for 32-watt, 48-inch tube.

2.12.1 Open-tube Fluorescent Fixtures

Provide with self-locking sockets, or lamp retainers (two per lamp)

2.13 PORTABLE EMERGENCY ENGINE GENERATOR

- A. General: Contractor shall provide a portable trailer mounted diesel engine driven electric generator set for standby emergency duty operation of latest commercial type and design with necessary switchgear, controls, and accessories for a complete automatic starting diesel electric generating plant for operation 500 feet above sea level in an ambient temperature of 120 degrees F maximum, 60 degrees F minimum. Unit shall be 60KW, 120/208 Volts, 3 phase, 4 wire, 0.8 PF, 60 cycle, static exciter, static regulator, voltage regulation within plus or minus 2 percent, 1800 RPM generator, and shall include 1 dry air cleaner, lube oil cooler, full flow lubrication oil filter, fuel oil filter, fly-wheel, instrument panel with lube oil, water temperature and fuel pressure gauges; lifting eyes, dry exhaust manifold, jacket water pump (gear driven), thermostat and housing, isochronous governor, flexible fuel lines, engine mounted radiator, for 120 degrees F maximum ambient air temperature, blower fan exhaust, fittings, including flexible adapter, Burgess Manning critical exhaust silencer, four Korfund spring type vibration isolators, overcranking, low oil pressure, high water temperature and overspeed safety shut-offs, fuel injection rack shut-off solenoid set for normally-open, standard engine mounted fuel transfer pump, maximum 8 feet suction lift, 24 volt D.C. automatic start-stop, includes junction box, 24 volt 135 amp hour battery set, floor standing battery rack, jumpers and leads. Engine generator shall be equal to Caterpillar 3412C TA. This set shall be built, tested, and shipped by one manufacturer so that there is one source of supply and responsibility. Certified test results shall be submitted for power loading, fuel consumption, and voltage and frequency regulation. Supplier shall have a full-time maintenance and servicing staff.
- B. Information Required:
1. Drawings of the generator set, its base and wheel requirements, interconnecting wiring and piping, etc.
 2. Literature describing the unit.
 3. Drawings and literature describing auxiliary equipment to be furnished.
 4. Specifications for a suitable fuel.
 5. Recommended spare parts list with unit prices.
 6. Template for unit mounting and supports.
- C. Engine: Engine speed shall not exceed 1800 RPM at normal full load operation. Isochronous governor shall be fully enclosed, self-lubricating, and capable of providing accurate speed control within plus or minus 2 percent of rated speed, and shall be isochronous type. Satisfactory performance on a commercial grade fuel oil such as No. 2 diesel oil is a requirement. Diesel engines requiring premium fuel will not be considered. Engine shall be capable of operating at idle or light loads for extended periods of time and shall provide for precombustion of fuel or a similar means for prevention of carbonization. Injection pumps and injection valves shall not require adjustment in service.
- D. Safety Controls: The engine shall be equipped with automatic safety controls which shut down the engine in event of low lubricating oil pressure, high jacket water temperature,

engine overspeed, and overcranking. An indicator light shall show cause of shutdown.

- E. Generator: The generator shall be 208Y/120, 3-phase, 4W, 60 cycle, 1800 RPM. It shall be of heavy duty, ball bearing construction. Generator shaft shall be connected to the engine flywheel through a suitable flexible disc coupling. The exciter shall have sufficient capacity to produce ample excitation under all normal load conditions. Static exciter, magnetic amplifier controlled type machine with fungus proof windings, rated 70 degrees C rise over 40 degrees C ambient with Class "F" insulation. Generator shall be soft mounted on fabricated steel base frame on wheels complete with towing assembly.

- F. Unit Mounted Generator Control Panel: Control panel box, shock mounted over the generator, including the following standard instrumentation:
 - 1. Oil pressure gauge.
 - 2. Water temperature gauge.
 - 3. D.C. battery charging ammeter.
 - 4. A.C. voltmeter, and 7-position phase(s) selection switch.
 - 5. Two panel mounted lights and switch.
 - 6. Voltage and frequency sensing relays.
 - 7. No-load test switch.
 - 8. Run-Stop-Automatic selector switch.
 - 9. Pushbutton start switch and safety circuit bypass pushbutton.
 - 10. Automatic field breaker (for Voltage regulator protection).
 - 11. Voltage adjusting rheostat.
 - 12. Automatic generator voltage regulator, internally mounted and wired, adjustable charge settings, transformer, diode type automatically disconnected during cranking.
 - 13. A.C. Ammeter kit, current transformers and 4-position phase selector switch.
 - 14. Frequency meter.
 - 15. Elapsed Time meter.
 - 16. Speed Adjust
 - 17. Environmental sealed front face
 - 18. Text Alarm descriptions
 - 19. Digital indication for:
 - a. RPM
 - b. DC Volts
 - c. Operating hours
 - d. Oil pressure (psi, kPA or bar)
 - e. Coolant temperature
 - f. Volts (L-L, & L-N) frequency (Hz)
 - g. –Amps (per phase & average)
 - h. ekW, kVA, kVAR, kW-hr, %kW, PF
 - 20. Warning/shutdown with common LED indication of:
 - Low oil pressure
 - High coolant temperature
 - Overspeed
 - Emergency stop

- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

21. Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

22. Communications:

- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

23. Compatible with the following:

- Digital I/O module
- Local annunciator
- Remote CAN annunciator
- Remote serial annunciator

G. Packaged Diesel Fuel Tank: fuel tank, epoxy coated inside. Threaded inlet, engine suction, engine return, overflow and drain, fuel tank vent, fuel gauge, all internal piping and wiring. Provide with pipe stand adapter for mounting 12 inches above finished floor. Provide fuel strainer, vent cap. Tank to be filled after test. Simplex SFT275A series.

H. Accessories shall include:

1. Class D 12-volt lead acid storage batteries, extra flexible battery cables, and battery rack for base mounting.
2. Critical type exhaust silencers and flexible pipe fittings. Bottom entry including mounting brackets.
3. Automatic start-stop controls shall provide for cycle cranking with alternate crank and rest periods of 10 seconds each. An overall timer shall limit the attempts to six. A locknut relay shall terminate the cranking and light the signal light.
4. Voltage and frequency sensing relays shall be adjustable.
5. 24-volt, adjustable, 2.0 ampere maximum two-rate battery charger.
6. Suitable cord and plug, 4#4/0 with ground wire, min 50 feet.

2.14 HARDWARE, SUPPORTS, BACKING, ETC.

- A. Provide all hardware, supports, backing and other accessories necessary to install electrical equipment. Wood materials shall be treated against termite, iron or steel materials shall be galvanized for corrosion protection, and non-ferrous materials shall be brass or bronze.
- B. Bolts, nuts, washers, and screws used for outside shall be high quality stainless steel or brass.
- C. Ground Rods: Ground rods shall be copper clad steel type, 3/4-inch diameter, 10 feet long, and conform to UL 467.

PART 3 – EXECUTION

3.1 GENERAL

- A. Install all electrical materials and equipment in accordance with manufacturer's recommendations and as approved by the Engineer for the seismic zone classification at the project site.
- B. Cut, break, drill and patch as required to install electrical system. Repair any surface damage or marred by notching, drilling or any other process necessary for installation of electrical work. Patch any damaged surfaces to match the existing surface.
- C. All equipment raceways, wiring and devices located in or passing through areas classified as hazardous by NEC shall comply with NEC Article 500. Provide approved explosion-proof equipment and seals in hazardous areas.
- D. All wiring and overcurrent devices for equipment furnished by other trades are sized for a contemplated equipment size. If equipment other than contemplated and indicated on the plan is provided, the Contractor shall be responsible for providing the required wiring, switches, and overcurrent devices at no cost to the Owner. The Contractor shall submit the proposed revisions to the electrical design to the Engineer for approval.
- E. The Electrical Contractor shall coordinate his work with other trades to avoid conflicts with mechanical, structural and architectural elements of this project.
- F. The Electrical Contractor shall coordinate all wiring and installation of electrical equipment.
- G. The Electrical Contractor shall coordinate all work relating to utility services with the respective utility companies. Contractor shall obtain utility company service drawings from the respective utilities and construct utility company services in accordance with those service drawings.

- H. Contractor shall follow installation and service instructions for all equipment furnished by Govt for installation by the Contractor.
- I. Contractor shall visit project site prior to bidding to determine nature and extent of demolition work required. Maintain existing circuiting to lights, outlets and equipment outside of project area and not otherwise shown.

3.2 JOBSITE CONDITIONS

- A. These specifications are accompanied by construction drawings including building and site plans of all trades showing locations of all outlet, switches, service runs, feeder runs, devices, and other electrical equipment. The locations are approximate and before installing, study adjacent architectural details and make installation in most logical manner. Any device may be relocated within 10'-0" before installation at direction of Engineer without additional cost to Owner.
- B. Before installing, verify all dimensions and sizes of equipment.
- C. Verify that electrical system may be installed in strict accordance with the original design, the Drawings and Specifications and the manufacturer's recommendations.
- D. In the event of discrepancy, immediately notify the Engineer. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.3 RACEWAYS

- A. Use conduits with approved coupling and connectors. All cuts square, using saw. Ream the ends. Bends made with approved tools. Reject flattened or crushed conduit. No running thread. Bushing and two locknuts at connection to boxes and enclosures.
- B. Seal against water during construction. Risers must be closed, except when pulling conductors.
- C. Exposed conduit runs to be parallel and/or perpendicular to architectural and structural elements. Galvanized rigid steel conduit or IMC up to 7'-0" above finished floor. EMT permitted for exposed installation above 7'-0". EMT also permitted for exposed installation throughout dedicated electrical rooms, except where routed up through grade slab.
- D. Electrical Metallic Tubing (EMT): Use only in dry furred spaces and walls above ground level except as noted above. Provide factory-made transition between rigid conduit and EMT. Use only compression type couplings or concrete tight couplings. Field-paint exposed tubing with corrosion-resistant paint.
- E. Non-metallic conduits only permitted for exterior ductlines and beneath grade slab at building and within walls up to height of first outlet box or device. Exposed installation of

non-metallic conduit not permitted. Installation of non-metallic conduits beneath areas with hazardous classifications not permitted.

- F. Galvanized rigid steel conduit only for branch circuit and control wiring to gas pumps, gas dispensers, card readers, intercoms, lighting, etc. associated with gas dispensing operations.
- G. Galvanized rigid steel conduit or IMC installed below grade shall be field wrapped with 0.01-inch thick pipe-wrapping plastic tape with a 50 percent overlay.
- H. Minimum conduit diameter shall be 3/4-inch trade size except that 1/2-inch conduit will be permitted for branch circuit (non-signal) raceways with a maximum of two current carrying conductors #10 AWG and smaller.
- I. Provide nylon pullstring of 200 pound minimum tensile strength in all empty conduits in excess of 15 feet in length.
- J. Conceal all raceways unless otherwise noted on the drawings.
- K. Conduits embedded in cast-in-place concrete slabs above grade shall be limited to 3/4-inch trade size, 9-inches on center for paralleled runs in 6 and 6-1/2-inch thick slabs. Conduit size can be increased in size to one-inch trade size maximum for slabs thicker than 6-1/2 inches.
- L. Conduits crossing expansion joints shall be provided with appropriate couplings or flexible conduit jumpers as required to accommodate a 1-inch movement between structural elements in all horizontal directions from the static, design position.

3.4 BOXES

- A. Plumb and securely fasten. Flush boxes - exactly flush; apply form oil so that stray concrete can be removed readily. Remove all debris from interior.
- B. Install boxes serving opposite sides of walls a minimum of 6 inches apart to minimize noise transmission.

3.5 CONDUCTORS

- A. Lubricants used for pulling of conductors shall be chemically neutral to insulation and sheath. Use powdered soapstone. Mechanical means for pulling to be torque-limiting type and not be used to #2 AWG and smaller wires.
- B. Form neatly in enclosures for minimum of cross-overs. No-solder pressure connectors or crimp connections for #8 AWG and larger wires. Remove all sharp points that can pierce tape. Reinsulate according to wire manufacturer's directions. Use of wirenuts are permitted only for the connections to luminaire wires and in junction boxes used exclusively for splicing.

- C. Clean all raceways, boxes, and enclosures before pulling wires and cables.
- D. Cables used for fire alarm and other electronic equipment shall be clearly and permanently tagged to show junction and destination. Cables shall be pulled and fastened securely so as to avoid sharp bends and prevent rubbing against sharp corners and shall be fastened to suitable hardware in a manner to prevent injury or physical distortion of cable. Splices, fittings, and connectors shall be indicated on the system layout to facilitate system servicing.

3.6 LUMINAIRES

Receive, store and protect against loss or damage. Install as directed by the Engineer. Provide all supports and wiring required.

3.7 PORTABLE EMERGENCY ENGINE GENERATOR

A. Installation: Contractor shall provide in accordance with details furnished by the Manufacturer. The Manufacturer shall provide the services of a superintendent to be responsible for checking electrically and mechanically prior to start-up. He shall make the initial start-up and make load tests. A test failure will require Contractor to restart entire test sequence. Contractor shall provide a loadbank capable of testing up to 100 percent of rated generator kW. Test shall consist of:

1. No-load and full-load automatic start-ups.
2. Run test of all safety devices.
3. Operate generator continuously under the following load conditions.
 - a. 50% load - 2 hours
 - b. 75% load - 2 hours
 - c. 100% load - 4 hours

B. Owner's Manual: Six copies of an operation, maintenance and parts list manual shall be provided to the Owner at time of delivery. The information shall cover the engine, generator, automatic transfer switch and all accessories. All data shall be systematically arranged in a hardback cover with indexing for the different sections and items.

3.8 CONNECTIONS TO MECHANICAL, AND ALL EQUIPMENT PROVIDED BY OTHER TRADES

A. Electrical Contractor shall provide conduit, wiring and all electric connections from building wiring to motors for heating, ventilating, air conditioning, and other equipment, including all switches, motor protection devices, specified by other trades.

B. Electrical Contractor shall ascertain from other trades furnishing motor-driven equipment, the exact size and type of all motors, the exact locations of such equipment and the proper point where electrical connections should be brought through the floors or walls, as the case may be. Locations shown are diagrammatic only; correct locations shall be the full

responsibility of the Electrical Contractor.

- C. Examine Mechanical, Food Service and other Drawings and Specifications for information concerning motors and control apparatus and diagrams, and for exact location of equipment outlets.
- D. Install motor control centers and individually mounted starters furnished for motors under other Divisions or Separate Contracts. Provide and install safety switches as necessary for each such motor.
- E. All control devices and control wiring shall be provided as described in the installation manuals of equipment and/or the Drawings and Specifications of other trades and disciplines.

3.9 MISCELLANEOUS DETAILS

- A. Provide necessary foundations, supports, backing, etc., for all raceways and equipment. Attach to wood and steel by screws or bolts. Attach to concrete by expansion anchors. Powder charge driven studs and anchors shall not be used.
- B. Clean all surfaces of enclosures and equipment.
- C. Close all unused knockout holes.

3.10 PAINTING

- A. Wipe clean of dirt, oil, grease, etc., with rag and solvent, prime and finish to match surrounding finish. Do not paint over nameplate. Paint as specified in PAINTING section.
- B. All surface-mounted boxes, enclosures, and exposed raceways shall be enamel painted to match the color of surrounding.
- C. Do Not field-paint metering equipment, circuit breakers, panelboards, and safety switches.
- D. Paint apartment loadcenter cover and trim to match adjacent wall finish.

3.11 IDENTIFICATION

- A. All overcurrent protection devices, enclosures, and cabinets shall be provided with plastic plate identifying itself and its use.
 - 1. Identify all breakers, metering devices, and safety switches.
 - 2. Cabinets. i.e. RELAY '2A'
- B. Plastic plate shall be laminated black and white, engraved 1/4-inch high lettering to expose

white layer. Identification plates for emergency system shall be laminated red and white plastic plate. Plate shall be riveted to the cover and located directly below device handle, or top side of door.

- C. CAUTION SIGNS shall be provided as required by Ordinances and/or by OSHA.

3.12 TESTING

- A. Upon completion of this portion of work, and prior to its acceptance by the Govt, make all required tests and secure all required approval from agencies having jurisdiction. Any deficiencies found shall be rectified and work affected by such deficiencies shall be completely retested at Contractor's expense. Written notification of all proposed tests shall be provided to the Engineer a minimum of 14 days prior to the date of the test.
- B. Perform an operational test after completion of the installation in the presence of the Engineer, to assure proper operation of all items of work. Remove all grounds and shorts. Balance feeder loads.
- C. Measure resistance of grounding system at service and furnish 3 copies of results to the Engineer.

3.13 OPERATIONS AND MAINTENANCE MANUALS

- A. Furnish to Owner, as part of equipment, 3 copies, unless otherwise indicated, of complete installation, operating and maintenance instructions, including schematic and wiring diagrams, engineering data sheets on each major component and complete servicing data, including part numbers of all replaceable components. The delivery of the equipment shall not be considered complete until those instructions have been received.
- B. Manuals are required for the following systems:
 - 1. Emergency Engine Generator and Accessories
 - 2. Automatic Transfer/Isolation-Bypass Switches

END OF SECTION