



Florida Army National Guard
Construction & Facility Management Office



ISSUED ADDENDUM

Date	06/11/2020
Addendum Number	2
Project Number and Name	211054 Construct New San Sewer Along Yerkes Road
Invitation to Bid Date	5/13/2020
Number of Attachments	2
Bid Opening Date and Time	6/25/2020 (2:00 PM – St. Augustine, FL)

From: Department of Military Affairs, CFMO Contracting Office

This addendum and the listed attachments forms a part of the contract documents and modifies the original bidding documents. Acknowledgement of this addendum in Exhibit 4 - Bid Proposal form is required.

Concerns with this addendum should be addressed to:
ng.fl.flarng.list.cfmo-contracting@mail.mil

Answers (A) to Questions (Q)

See attachment

Attachment List

1. Bidders Request for Information (RFI) Response Summary, dated June 11, 2020
2. Specification SECTION 263213 – DIESEL GENERATOR, SUBBASE TANK, AND ACCESSORIES, is added and made part of the bidding documents.

END OF ADDENDUM #2



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June 11, 2020

Re: CBJTC Yerkes Road Sewer Project – 211054 – Bidders Request for Information (RFI) Response Summary

RFI Questions and Responses:

Q1: On the master lift station there is no conditions of service, (Flow, head). Just a pump model number and voltage. Please provide.

R1: Please bid the pump model provided. Alternatives may be considered at a later date. However, below is the requested data:

Pump station #1

Pump: Flygt MF 3069 HT 1-258
Operating Conditions: 22 gpm @ 68 TDH

Pump Station #2

Pump: Flygt NP 3153 SH 3 -274
Operating Conditions: 88gpm @157 TDH

Q2: Please confirm disturbed areas are to be sodded (Grading and Drainage Note 10) in lieu of hydroseeding.

R2: Please bid all disturbed areas not to be concreted or surfaced with #57 stone to be hydro-seeded

Q3: General Note 7/C3.02 and Typical Pump Station Site Plan/C3.03 differ regarding the driveway construction at Pump Station 2. Please clarify if it is to be concrete or 57 stone.

R3: The driveway up to the fence of the pump station shall be concrete, the enclosed pump station area shall be #57 other than concrete pads, etc.

Q4: Structure S-19 call to be agru-lined and others call out spectra shield can s19 also be spectra shield

R4: Please bid liners as call out on plans with S-19 being agru-lined and all others being Spectra-shield. An alternative may be considered at a later date.

Q5: At the latrine across from lift station 2 Is the 6" sewer line gravity?

R5: Yes, the 6' sewer line will be gravity.

Additional information:

Please see the attached specification 263213 for the Diesel Generator, Sub-base tank, and accessories.

Thank you for the bidding questions!

Sincerely,

GOODSON, BERGEN & ASSOCIATES, INC.



Edward L. Goodson
Principal

ELG/elg

Attachments: as noted

Yerkes Road Sanitary Sewer

GENERATOR SPECIFICATIONS

June 05, 2020

Prepared by:

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SECTION 263213 - DIESEL GENERATOR, SUBBASE TANK, AND ACCESSORIES

PART 1 - GENERAL

1.1 REFERENCES AND STANDARDS

- A. The generator covered by these specifications shall be designed, tested, rated, assembled and installed in strict accordance with all applicable standards of ANSI, NEC, ISO, UL, IEEE and NEMA. The generator system design, installation and on-site testing shall conform to the requirements of the following codes and standards (latest edition or edition adopted by Authority Having Jurisdiction, if earlier):

IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications

NEMA MG1 – Motors and Generators

NFPA37 – Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines

NFPA70 – National Electrical Code (Edition adopted by AHJ). Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.

NFPA110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1 prototype tests required by this standard shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement.

UL142 – Steel Aboveground Tanks for Flammable and Combustible Liquids

UL 1004-4 – Standard for Electric Generators

UL 1008 – Safety Transfer Switch Equipment

UL 1236 – Battery Chargers

UL 142 – Protected Aboveground Storage Tanks

UL 2200 – Stationary Engine Generator Assemblies. The generator set shall be listed to UL 2200 or submit to an independent third-party certification process to verify compliance as installed.

1.2 NOT USED.

1.3 WORK INCLUDED

- A. The generator assembly (with enclosure, and subbase tank) shall be transported to site by the vendor and placed on concrete pad by Contractor.
- B. System Test. A complete system load test with 80 kW load bank shall be performed after all equipment is installed.

- C. Requirements, Codes and Regulations. The equipment supplied and installed shall meet the requirements of the NEC and all applicable local codes and regulations. All equipment shall be of new and current production by a MANUFACTURER who has 25 years of experience building this type of equipment.
- D. Provide all required Florida Department of Environmental Protection (DEP) permits.

1.4 SUBSTITUTION

- A. Substitution Responsibility. The power system has been designed to the specified manufacturer's electrical and physical characteristics. The equipment sizing, spacing, amounts, electrical wiring, ventilation equipment, fuel and exhaust components have all been sized and is based on CATERPILLAR supplied equipment. Should any substitutions be made, the CONTRACTOR shall bear responsibility for the installation (including dimensional changes), coordination and operation of the system as well as any engineering and redesign costs, which may result from such substitutions. Submit catalog data for the proposed generator along with a line by line compliance statement based on this specification.

1.5 SUBMITTALS

- A. Engine-generator submittals shall include the following information:
 - 1. Factory published specification sheet indicating standard and optional accessories, ratings, etc.
 - 2. Manufacturer's catalog cut sheets of all auxiliary components such as battery charger, control panel, enclosure, etc.
 - 3. Dimensional elevation and layout drawings of the generator set, enclosure and transfer switchgear and related accessories.
 - 4. Weights of all equipment.
 - 5. Concrete pad recommendation, layout and stub-up locations of electrical and fuel systems.
 - 6. Interconnect wiring diagram of complete emergency system, including generator, battery charger, remote alarm indications, and generator accessory circuits.
 - 7. Engine mechanical data, including heat rejection, exhaust gas flows, combustion air and ventilation air flows, fuel consumption, etc.
 - 8. Generator electrical data including temperature and insulation data, cooling requirements, excitation ratings, voltage regulation, voltage regulator, efficiencies, waveform distortion and telephone influence factor.
 - 9. Generator resistances, reactances and time constants.
 - 10. Generator locked rotor motor starting curves.
 - 11. Control panel schematics.
 - 12. Manufacturer's and dealer's written warranty.

1.7 SYSTEM RESPONSIBILITY

- A. Generator Set Distributor. The completed engine generator set shall be supplied by the Manufacturer's authorized distributor only.
- B. Requirements, Codes and Regulations. The equipment supplied and installed shall meet the requirements of NEC and all-applicable local codes and regulations. All equipment shall be new, of current production. There shall be one source responsibility for warranty; parts and service through a local representative with factory trained service personnel.

1.8 WARRANTY

- A. Warranty. The manufacturer's warranty shall in no event be for a period of less than two (2) years from date of initial start-up of the system and shall include repair parts, labor, reasonable travel expense necessary for repairs at the job site, and expendables (lubricating oil, filters, antifreeze, and other service items made unusable by the defect) used during the course of repair. Submittals received without written warranties as specified will be rejected in their entirety.

1.9 PARTS AND SERVICE QUALIFICATIONS

- A. Service Facility. The engine-generator supplier shall maintain a parts and service capability that can provide 24-hour maximum response time. The distributor shall stock parts as needed to support the generator set package for this specific project.

PART 2 - PRODUCT SPECIFICATIONS

2.1 GENERAL REQUIREMENTS

- A. Genset Requirements. The generator set shall be Standby rated at 80 kW, 100 kVA, 1800 RPM, 0.8 power factor, 208Y/120V, 3 phase, 4 wire, 60 hertz, including radiator fan and all parasitic loads. The generator assembly shall be UL listed under UL 2200, Stationary Engine Generator Assemblies. The generator shall be classified as Level 1, Type 10, Class X per NFPA 110. The manufacturer shall be certified to ISO 9001 International Quality Standard.
- B. Material and Parts. All materials and parts comprising the unit shall be new and unused.
- C. Engine. The engine shall be compression ignition type diesel fueled, four (4) cycle, water-cooled, twelve cylinder (V12), operating with nominal speed not exceeding 1800 RPM. No two (2) cycle engines will be considered. The generator shall meet EPA emissions standards per the required Tier. It shall be sized to deliver the required kW rating in an ambient temperature of 117 F with all accessories in place. Full pressure lubrication shall be supplied by a positive displacement lube oil pump. The engine shall have air cleaner, coolant, fuel and

oil filters with replaceable elements; lube oil cooler and a fuel lift pump. The engine shall have a 12-volt battery charging DC, alternator with a transistorized voltage regulator.

- D. Engine Governing. The engine will be equipped with an isochronous electronic governor to maintain 0% droop from no load to full load and +/- 0.2 Hertz steady state frequency variation that shall be compatible with the any uninterruptable power supplies in the facility.

2.2 GENERATOR

- A. Generator Specifications. The synchronous generator shall be a single bearing, self-ventilated, drip-proof design in accordance with NEMA MG 1 and directly connected to the engine flywheel housing with a flex coupling.
- B. Alternator. The alternator shall conform to NEMA MG1 and shall be a synchronous, four pole, 2/3 pitch, revolving field, drip-proof construction, air cooled by a direct drive centrifugal blower fan, and a pre-lubricated sealed bearing design with flexible drive disc coupling directly connected to the engine. All insulation system components shall meet NEMA MG1 temperature limits for Class H insulation system and be impregnated in a polyester varnish or vacuum impregnated with epoxy varnish to be fungus resistant. Actual temperature rise in accordance with NEMA MG1, measured by resistance method at full load, shall not exceed a temperature of 105 °C rise. The alternator shall be capable of delivering rated genset output kW at rated frequency and power factor, at not more than 5 percent above or below rated voltage. At full load, the alternator efficiency shall be not less than 92 % Minimum.
- C. Separately Derived Excitation. The alternator shall be equipped with a brushless rotating exciter system and designed for sustained operation at 125% of the RPM specified for the engine generator set without damage. The brushless exciter shall be independent of main stator windings (permanent magnet) shall consist of a three-phase armature and a three-phase full wave bridge rectifier mounted on the rotor shaft. Surge suppressors shall be included to protect the diodes from voltage spikes. Protection shall be rated IP22. Generator shall have the ability to sustain short circuit current of 300% of rated current to allow protective devices to operate.
- D. Voltage Regulator
 - 1. Automatic Voltage Regulator. The digital automatic voltage regulator (AVR) shall maintain generator output voltage within +/- 0.5% for any constant load between no load and full load. The regulator shall be a totally solid state design, which includes electronic voltage buildup, volts per Hertz regulation, overexcitation protection, shall limit voltage overshoot on startup, and shall be environmentally sealed.

2.3 CIRCUIT BREAKER

- A. Circuit Breaker Specifications. Provide an adjustable 100% rated 250 Amps, 3 pole circuit breaker, with an LI electronic trip unit. The circuit breaker shall be molded case or insulated case construction, short circuit rating per the design drawings, and with shunt trip capability. The breaker shall be unit mounted and housed in a steel NEMA 1 enclosure. Bus bars, sized for the cable type shown on drawing, shall be supplied on the load side of breaker.

2.4 CONTROL PANEL

- A. Generator Mounted Control Panel. Provide a generator set mounted microprocessor based control panel for complete control and monitoring of the engine and generator set functions. Panel shall include automatic start/stop operation, cycle cranking, AC metering with phase selector switch, shutdown sensors and alarms with horn and reset, adjustable cooldown timer and emergency stop push-button.
- B. Critical components shall be environmentally sealed to protect against failure from moisture and dirt. Components shall be housed in a NEMA 1/IP22 enclosure with hinged door. Panel / breaker arrangements mounted on the generator set in such a way that access to the AC Generator terminal box is restricted in any way whatsoever are not acceptable.
- C. Readouts
 - 1. Provide the following readouts:
 - a. Engine oil pressure
 - b. Coolant temperature
 - c. Engine RPM
 - d. System DC Volts
 - e. Engine running hours
 - f. Generator AC Volts
 - g. Generator frequency
 - h. Generator AC Amps
- D. Alarm NFPA 110. Provide the following indications for protection and diagnostics according to NFPA 110 level 1:
 - 1. Low oil pressure
 - 2. High water temperature
 - 3. Low coolant level
 - 4. Overspeed
 - 5. Overcrank
 - 6. Emergency stop depressed
 - 7. Approaching high coolant temperature
 - 8. Approaching low oil pressure
 - 9. Low coolant temperature
 - 10. Low battery voltage
 - 11. Control switch not in auto position
 - 12. Low fuel main tank
 - 13. Battery charger failure
 - 14. High battery voltage
 - 15. High Fuel Level
 - 16. Tank Rupture Alarm

- E. Control Functions / Interfaces. Provide the following control functions
 - 1. Terminals located inside the control panel for REMOTE EMERGENCY STOP
 - 2. ON / OFF / AUTO control switch

- F. Annunciation. Provide audio and visual alarms for the functions described above in paragraph 2.4.D. Provide a switch to turn off the alarms.

2.5 COOLING SYSTEM

- A. The generator set shall be equipped with a rail-mounted, engine-driven radiator with blower fan and all accessories. The cooling system shall be sized to operate at full load conditions and 110 F ambient air entering the room or enclosure (If an enclosure is specified). The generator set supplier is responsible for providing a properly sized cooling system based on the enclosure static pressure restriction.

2.6 FUEL SYSTEM

- A. Fuel Piping. All fuel piping shall be flexible fuel hose rated for this service. All fuel lines shall be installed at the time the enclosure and tank are integrated with the generator (not on the construction site).

- B. Fuel Line Rating. Flexible fuel lines rated 300 degrees F and 100 PSI.

2.7 EXHAUST SYSTEM

- A. Silencer. A critical grade silencer designed for use inside the enclosure, companion flanges, and flexible exhaust fitting properly sized shall be furnished and installed according to the manufacturer's recommendation. The silencer shall be mounted so that its weight is not supported by the engine nor will exhaust system growth due to thermal expansion be imposed on the engine. Exhaust pipe size shall be sufficient to ensure that exhaust back pressure does not exceed the maximum limitations specified by the engine manufacturer.

2.8 STARTING SYSTEM

- A. Starting Motor. A DC electric starting system with positive engagement shall be furnished. The motor voltage shall be as recommended by the engine manufacturer. Provide dual starting motors for redundancy.

- B. Jacket Water Heater. A unit mounted thermal circulation type water heater. The heater Watt rating shall be sized by the manufacturer to maintain jacket water temperature at 90 deg. F, and shall be 120 or 208 Volt, single phase, 60 hertz.

- C. Batteries. A lead-acid storage battery set of the heavy-duty diesel starting type shall be

provided. Battery voltage shall be compatible with the starting system. Necessary cables and clamps shall be provided.

- D. Battery Charger. A current limiting battery charger shall be furnished to automatically recharge batteries. The charger shall be dual charge rate with automatic switching to the boost rate when required. Output voltage regulation shall not exceed 1% the charger shall include temperature compensation. It shall also include overload protection, silicon diode full wave rectifiers, voltage surge suppressor, DC ammeter, DC voltmeter, and fused AC input. AC input voltage shall be 120 volts, single phase. On outdoor units the battery charger shall be mounted inside the genset enclosure.

2.9 ENCLOSURE AND TANK

A. Sound Attenuated Enclosure

1. The complete diesel engine generator set, including generator control panel, engine starting batteries and fuel oil tank, shall be enclosed in a sound attenuated enclosure mounted on the fuel tank base. Confirm enclosure color with Guard. Enclosure shall be designed for a minimum wind load rating of 150 mph per the Florida Building Code. Note that tanks and enclosure components shall meet the HVHZ large missile impact requirement of Section 1626 of the Florida Building Code and enclosure manufacturer shall be listed with the State of Florida as compliant with Section 1626 of the FBC.
 - a. Provide a weather resistant, sound attenuated aluminum enclosure with electrostatically applied powder coated baked polyester paint. The enclosure shall have a resulting sound level of 77 dBA at 23 feet with the genset running under full load (note that this number assumes no reflectance from buildings or other large objects). In addition, the generator shall meet all local sound ordinances (which may be more stringent than the 77 dBA quoted above). The enclosure shall also reduce sound levels by an average of 25 dB at 23 feet. It shall consist of a roof, side walls, and end walls. Fasteners shall be either zinc plated or stainless steel. Provide permanent steel stairs and railing conforming to OSHA requirements. The stairs and railing shall be hot dipped galvanized after fabrication. Provide a weatherproof NEMA 5-20R, 20A, 120V, specification grade ground fault circuit interrupt (GFCI) receptacle inside the enclosure. Provide a 40 Amp, 120V circuit from the pump station control panel to the generator power block to power generator accessories. Confirm size and voltage of circuit with generator vendor before proceeding. Coordinate with pump station control panel vendor, if changes to control panel are necessary.
 - b. A 72-hour (at full load) fuel tank base shall be provided as an integral part of the enclosure and shall comply with UL 142. It shall be contained in a rupture basin with 110% capacity. The tank shall be pressure tested for leaks prior to shipment and have all necessary venting (standard and emergency) per U.L. standards. A locking fill cap, a mechanical reading fuel level gauge, low fuel level alarm contact, and fuel tank rupture alarm contact shall be provided. Tank shall meet all requirements of FDEP. Provide any required permitting for the tank and generator.

- c. Number of doors on enclosure shall be as required so that all normal maintenance operations, such as lube oil change, filter change, belt adjustment and replacements, hose replacements, access to the control panels, etc., may be accomplished without disassembly of any enclosure components. Access doors shall be fabricated of the same material as the enclosure walls and shall be reinforced for rigidity. Handles shall be key lockable, all doors keyed alike, and hinges shall be zinc die cast or stainless steel. Fasteners shall be zinc plated or stainless steel.
 - d. Air handling will be sized and designed by the manufacturer for 0.5 inches of water gauge static pressure drop through enclosure to minimize water intrusion. Intake openings shall be screened to prevent the entrance of rodents and birds. The system shall include a cooling and combustion air inlet silencer system, an equipment enclosure section, and a cooling air discharge silencer section. Important: An air scoop shall be provided that directs all exhaust air up to minimize noise and to allow the generator to be installed behind a barrier wall without louvers, if desired by the County. Air discharge hood shall be mounted in front of the unit mounted radiator and includes an integral punched screen air discharge barrier mounted in front of the normal radiator area to protect from birds and debris. Discharge hood includes a rain gutter to channel water away from the genset interior. The discharge hood and air discharge barrier shall be made of the same enclosure material to complement the genset exterior.
 - e. Lube oil and coolant drains shall be extended to the exterior of the enclosure and terminated with drain valves and capped with pipe nipples on flanged connectors. Radiator access shall be through a hinged, lockable cover on enclosure. Cooling fan and charging alternator shall be fully guarded to prevent injury.
- B. Enclosure Sound Attenuation: Acoustical foam shall be provided between all supports and inside doors and sound baffles on air intake and air discharge.
 - C. Lifting points on baseframe suitable for lifting combined weight on base tank, generator set and enclosure. A tested and certified single point lifting facility to aid in generator placement.

2.10 AUTOMATIC TRANSFER SWITCHES (ATS).

- A. Provide a 260A, 208V 3 pole automatic transfer in a lockable NEMA 3RX 316 stainless steel enclosure. The switch shall conform with NEMA ICS2-447, NFPA 70, NFPA 99, NFPA 110, and UL 1008. The short circuit withstand rating shall be at least 42K symmetrical Amps at 240V. The switch shall require front access for all maintenance (side or back access shall not be required). Basis of design is ASCO Series 300.
- B. Provide an integral surge suppression device (SPD) for the transfer switch per manufacturer's recommendations. The SPD shall be rated for at least 80KA, per mode, surge current (single pulse surge current for an 8x20 ms waveform). Voltage protection rating shall be 450 volts L-N and 800 volts L-L. The SPD device shall have visual fault indication and shall meet UL 1449, current edition.

- C. The transfer switch shall incorporate solid state programmable logic and include:
1. Pilot lights in face of enclosure indicating source to which the ATS is connected and available sources.
 2. Frequency of emergency system at transfer, 70 to 90 percent (adjustable).
 3. Solderless connectors for normal source cables, emergency source cables, load cable, and solid neutral bar.
 4. No load manual transfer mechanism.
 5. Voltage monitoring of each phase of normal source (full protection), adjustable 70 to 90 percent.
 6. Voltage and frequency monitoring of one phase of emergency source.
 7. Voltage of emergency at transfer, 70 to 90 percent (factory set 90 percent).
 8. Frequency of emergency at transfer, 70 to 90 percent (factory set 90 percent).
 9. Time delay, engine starting, adjustable 0.1 to 10 seconds, set at 3 seconds.
 10. Engine cool down timer (adjustable 1 to 30 minutes)
 11. Time delay, normal to emergency (0 to 300 seconds adjustable)
 12. Time delay, emergency to normal (adjustable to 30 minutes (factory set 5 minutes)
 13. Time delay bypass switch mounted on face of enclosure
 14. In-phase monitor to transfer motor loads, without any intentional off time, to prevent inrush currents from exceeding normal starting levels.
 15. Mode selector switch in the face of the enclosure marked auto / test.
 16. Fast test mode: resets engine minimum run (to 10 seconds), engine cool down (to 0 seconds), and return to utility (0 to 5 seconds)
 17. Engine exerciser to automatically test engine generator each week. Include control switch for selecting whether to test with or without load.
 18. Auxiliary contacts to indicate position of main contacts, one for normal, one for emergency.
 19. Neutral lug provided with switch.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install equipment in accordance with manufacturer's recommendations, the project drawings and specifications, and all applicable codes.

3.2 START-UP AND TESTING

- A. Coordinate all start-up and testing activities with the Engineer and Government.
- B. After installation is complete and normal power is available, the manufacturer's local dealer shall perform the following:
1. Verify that the equipment is installed properly.
 2. Check all auxiliary devices for proper operation, including battery charger, jacket water heater(s), control panel, etc.

3. Test all alarms and safety shutdown devices for proper operation and annunciation.
4. Check all fluid levels.
5. Start engine and check for exhaust, oil, fuel leaks, vibrations, etc.
6. Verify proper voltage and phase rotation at the transfer switch before connecting to the load.
7. Connect the generator to building load and verify that the generator will start and run all designated loads.
8. The system shall be tested under full load and monitor the following readings:
 - a. Oil pressure
 - b. Coolant temperature
 - c. Battery charge rate
 - d. AC volts
 - e. AC Amperes- all phases
 - f. Frequency
 - g. Kilowatts
 - h. Ambient Temperature

- C. Allow the system to run at least two hours and then demonstrate the automatic cool down and shutdown sequence. Also provide a four-hour load bank test.

3.3 OPERATION AND MAINTENANCE MANUALS

- A. Provide two (2) sets of operation and maintenance manuals covering the generator, ATS, and auxiliary components. Include final as-built wiring interconnect diagrams and recommended preventative maintenance schedules.

3.4 TRAINING

- A. On-Site Training
 1. Provide one day of on-site training to instruct the Owner's personnel or support contractors in the proper operation and maintenance of the equipment. Review operation and maintenance manuals, parts manuals, and emergency service procedures. Provide a video of the training session in DVD format for the Government's use.

END OF SECTION 263213