

## SECTION 18603

### TELEMETERING SYSTEM (FLORIDA CITIES)

NOTE: Use for wastewater pumping stations in the former Florida Cities service area

#### PART 1 GENERAL

##### 1.1 SCOPE

- A. Furnish and install a MC-RTU system at each lift station as shown on the Drawings. Wiring between the MC-RTU and the Pump Control Panel shall be by the CONTRACTOR. The MC-RTU shall include the antenna mast, antenna, and cable. The MC-RTU shall be designed to monitor the lift station status and communicate this status via a R.F. link to the Fiesta Village AWTP existing computer.

Each MC-RTU shall be pre-wired and installed within a Hoffman enclosure, as shown on the Drawings. Fused terminal blocks shall be provided for all inputs and outputs. Blocks and wires shall be permanently marked to indicate the appropriate I/O address of each circuit.

#### PART 2 PRODUCTS

##### 2.1 MONITOR / CONTROL ( MC-RTU )

###### A. GENERAL

1. The MC-RTU shall be a Modpac Plus Wireless Modem with opto-22 I/O modules and a frequency-synthesized R.F. transceiver.
2. The Modpac Plus modem shall be fully addressable, acting as an intelligent communications controller, permitting communications to be directed to the exact location required.
3. The Modpac Plus shall support Modbus protocol.
4. The I/O modules shall be plug-in units allowing modules to be individually added or removed.
5. All mounting equipment, connecting cables, operating manuals, etc. must be provided to provide a functional monitoring system.
6. All interconnecting wire shall be stranded tinned copper type.

## 2.2 MODPAC PLUS MODEM

- A. The Modpac Plus modem shall incorporate packet technology with CRC-16 error detection and re-transmission capabilities to assure that only perfect data is actually transmitted and received at each location.
- B. The unit shall be designed to act as a Transparent Repeater capable of re-transmitting data from one location to the next ( up to 4 repeaters ).
- C. The Modpac Plus unit shall be easily configured with online programming capabilities.

## 2.3 INPUT AND OUTPUT MODULES SPECIFICS

- A. Input and output modules shall be plug-in units selected as either digital I/O and / or analog I/O.
- B. All field wiring shall be to screw connectors attached to the I/O mounting rack. It shall be possible to remove and replace any module without disturbing the field wiring connections or any other module.
- C. Digital input modules shall be 24 VDC, or 120 VAC as required.
- D. Digital output modules shall be 24 VDC, or 120 VAC as required.
- E. Analog input modules shall be 4-20 Ma with a minimum of 11-bit resolution.

## 2.4 RF RADIO

- A. The modem shall incorporate a built-in frequency-synthesized narrow band 5 watt UHF transceiver. The frequency shall be programmable utilizing a laptop computer.
- B. The programmable frequency range shall be 403-512 MHz.
- C. The transceiver shall be powered with 12.5vdc, 850ma external power source.
- D. The radio shall be as manufactured by Johnson Radio or approved equal.

## 2.5 ENVIRONMENTAL

- A. The entire MC-RTU system shall be capable of operating in ambient temperatures of 0 to 60 degrees c.
- B. The entire MC-RTU system shall be capable of operating in relative humidities of 5% to 95% non-condensing.
- C. Lightning and transient surge protection shall be provided for all circuitry entering or leaving the MC-RTU unit.

## 2.6 ANTENNA SYSTEM

- A. A high-gain Yagi antenna shall be furnished and installed for the appropriate licensed frequency, and shall be used to transmit and receive data at the MC-RTU. It shall be supported on a aluminum pole and have independent grounding for lightning protection as shown on the contract drawings. All hardware shall be stainless steel.
- B. The antenna shall be a Sinclair Model SRL-307, with 10db gain characteristics.
- C. The antenna cable and connectors shall be 2" Andrew Type LDF 4-50A RF for coaxial cable.

## 2.7 WARRANTY

The entire MC-RTU shall have a minimum of one (1) year manufacturer's warranty that covers all parts and labor against any defects in materials or workmanship.

## PART 3 EXECUTION

### 3.1 OPERATION

- A. The MC-RTU shall monitor the sewage pump station status, both discrete signals and analog signals as stated herein. The analog signal will be the wet well level as outputted from the ULC.

The following shall be monitored and transmitted to the existing Fiesta Village AWTP computer for monitoring and display.

- B. Digital Inputs (D/I)
  - 1. Station power status
  - 2. Station phase failure
  - 3. Alarm horn status
  - 4. Pump #1 status
  - 5. Pump #2 status
  - 6. High level float
- C. Digital Outputs (D/O)
  - 1. Alarm horn remote reset
- D. Analog input (A/I)
  - 1. Wet well level
- E. S.C.A.D.A. Computer Points
  - 1. Wet well high level alarm
  - 2. Radio communication statistics

3.2 SOFTWARE MODIFICATIONS

- A. CONTRACTOR shall provide software modifications to the existing Fiesta Village AWWTP scada computer as required.

3.3 STARTUP SUPERVISION

- A. The startup of the entire Lift Station monitoring system shall be by the system integrator.
- B. The system integrator shall be Curry Controls Co. Of Lakeland, Florida.
- C. The OWNER shall be instructed as to the operation and maintenance of the MC-RTU system.

END OF SECTION