PORTSMOUTH-KITTERY
16189B

~~October 23, 2020~~April 21, 2021

SPECIAL PROVISION

SECTION 677 – INTELLIGENT TRANSPORATION SYSTEMS (ITS) EQUIPMENT

COMMUNICATION EQUIPMENT SHELTER SPECIFICATION

Description

1.1 This work shall consist of constructing the communications equipment shelter as shown on the plans. This work also consists of furnishing, installing, and testing the wireless communication equipment inside the shelter.

Materials

2.1 Communication Equipment Shelter.

2.1.1 The New Hampshire shelter shall have a minimum of 120 Square Feet of internal space unless specified otherwise in the contract documents. The Maine shelter shall have a minimum of 154 Square Feet of internal space unless specified otherwise in the contract documents

2.1.2 The shelter shall have an internal CCTV camera to provide remote viewing of the internal equipment rack.

2.1.3 The shelter shall have an integrated combination lock in the door handle.

2.1.4 The shelter shall have a 1 foot exterior awning over the entranceway to minimize water ingress into the building.

2.1.5 The shelter shall have an exterior light with industrial grade protective coverings to prevent falling debris or vandals from breaking the light bulb.

2.1.6 The shelter interior shall have two (2), two (2) bulb 4-foot LED lights with a wall switch.

2.1.7 The shelter shall have an HVAC system sufficient to heat and cool the shelter and maintain the temperature range of 60 to 80 degrees Fahrenheit year-round.

2.1.8 The shelter shall have an environmental monitoring system that provides alerts when configurable temperature thresholds have been met.

2.1.9 The shelter shall have an environmental monitoring system that provides alerts when water sensor thresholds have been met. A feasible vendor for this environmental monitoring is Avtech room alert 3 or 3E

2.1.10 The shelter shall have an Electrical Load Center that is sufficient to support the HVAC system and the equipment to be installed in the shelter equipment rack.

2.1.11 The shelter electrical panel shall be sized appropriately to support twice the power needs of the shelter.

2.1.12 The shelter shall have surge protection built into the Electrical Load Center.

2.1.13 The shelter shall have two (2), 20 AMP single phase 110 four gang electrical outlets installed with one of the left and one on the right of the shelter.

2.1.14 The shelter shall have two (2), 30 AMP single phase 110 twist lock outlets mounted in the ceiling above each equipment rack.

2.1.15 The shelter shall have a transfer panel for a generator as specified by the Contractor.

2.1.16 The shelter shall have an industrial vinyl floor covering.

2.1.17 The shelter interior copper ground bars, as needed, shall be isolated.

2.1.18 The shelter exterior ground bars, as needed, shall be isolated and galvanized.

2.1.19 All shelter exterior earth terminals and wire to wire bonds shall be exothermically welded.

2.1.20 The shelter shall have cable ladder racking for fiber cable and a wireless microwave cable management to support the project plan.

2.1.21 The cable ladder racking trays shall be above the equipment racks.

2.1.22 The shelter and the climbable mounting structure shall have a centralized earth terminal system for all equipment bonding needs in accordance with the NEC.

2.1.23 The shelter door shall be grounded and bonded to the centralized earth terminal.

2.2 Communication Shelter Equipment Rack.

2.2.1 The shelter shall have an equipment rack installed that is a minimum of 89” H x 42” D x 24” W

2.2.2 The equipment rack shall have removable doors and side panels.

2.2.3 The equipment rack shall have 2 power distribution units installed with twist lock plugs.

2.2.4 The equipment rack shall have an adequate number of outlets to support the equipment that is installed on the rack.

2.2.5 The equipment rack shall have a main equipment interior isolated copper ground bar.

2.3 Communication Shelter Foundation Specifications.

2.3.1 The foundation shall be concrete with a minimum thickness of 6 inches.

2.3.2 The foundation shall be level.

2.3.3 The equipment shelter shall be centered on the concrete foundation which shall be 4 ft wider and longer than the outside dimensions of the shelter.

2.3.4 A concrete foundation shall be provided for the generator and HVAC units if they are ground mounted. The foundation can be separate or integrated into the shelter pad.

2.4 Conduit Specifications.

2.4.1 The conduit shall enter the shelter through the wall.

2.4.2 The shelter shall include all necessary conduit ports for ingress and egress in the shelter to support the project requirements.

2.4.3 All fiber conduit shall have tracer wire installed if the fiber cable does not include it.

2.4.4 All conduit shall be sealed to prevent rodents and insects from entering.

2.5 Standby Generator.

2.5.1 The generator shall be provided and installed to power the communications shelter facility.

2.5.2 The generator shall be rated for continuous duty.

2.5.3 The generator shall be sized to support the electric load of the communication system shelter facility, HVAC systems, and communications equipment within as designated, designed, and constructed.

2.5.4 An automatic generator transfer electric panel shall be provided.

2.5.5 The generator transfer panel shall be wall mounted within the shelter.

2.5.6 The generator engine shall be configured to exercise with load once every calendar week for 10 minutes per occurrence.

2.5.7 The generator system shall provide indication of operational status that automatically alerts the owner/operator upon start or that can be remotely monitored on demand.

2.5.8 The generator shall be supplied with the original equipment manufacturer's cold climate heater options for the engine.

2.5.9 The generator shall be located on an elevated reinforced concrete slab with a length and width 8 inches greater than that of the generator cabinet footprint. An alternative mounting surface recommended by the original equipment manufacturer is also acceptable.

2.5.10 The generator engine and local controls shall be mounted withing a cabinet or chest.

2.5.11 The generator cabinet or chest shall be outfitted with a lock and supplied with two (2) keys.

2.5.12 The generator for the New Hampshire structure shall be fueled by liquid propane (LP).

2.5.13 The generator for the Maine structure shall be designed in accordance with Special Provision 677 – Maine Communications Equipment Shelter Stand By Generator Specification.

Construction Requirements

3.1 All facility electrical installations shall be done in accordance with the current National Electrical Code (NEC).

3.2 Communication Equipment Shelter.

3.2.1 The Contractor shall provide at a minimum a 12' D x 10' W x 9' H environmentally controlled shelter for the New Hampshire structure.

3.2.2 The Contractor shall provide at a minimum a 14' D x 11' W x 9' H environmentally controlled shelter for the Maine structure.

3.2.3 The Contractor shall provide commercial power for the shelter.

3.2.4 The Contractor shall provide surge protection for all metallic data cables.

3.3 Communication Shelter Equipment Rack.

3.3.1 The Contractor shall provide electrical load requirements for the UPS to be provided by others.

3.3.2 The Contractor shall provide dual power supplies for all microwave radios to be installed by the contractor.

3.3.3 The equipment rack shall include the following devices:

3.3.3.1 HP DL380 Recording server with two (2) redundant 800 Watt power supplies

3.3.3.1 DataProbe Iboot-PDU Remote Power Manager

3.3.3.1 Cisco Router/Switch with two (2) 350 Watt power supplies

3.3.3.1 APC Smart UPS. The Contractor shall determine the size based on the power draw of additional items added to the equipment rack.

3.3.4 DoIT NetOps will verify that the switch in the 10 Ranger Road office has fiber SFP slots. The Fiber SFPs shall be purchased by DoIT using project funds.

3.4 Standby Generator.

3.4.1 The New Hampshire structure's standby generator ~~The Contractor~~ shall ~~supply and install the~~include an above ground ~~125 gallon~~ vertical LP tank with a regulated valve of sufficient capacity to achieve 96 hours of continuous operations. The Contractor shall fill the LP tank(s) to 80% of the tank capacity with cold climate antifreeze additive.

3.4.1.1 The LP tank(s) shall be installed and located in accordance with the applicable plumbing construction code and on an elevated crushed stone base.

3.4.2 The Maine structure's standby generator shall be installed in accordance with Special Provision Maine Communications Equipment Shelter Stand By Generator Specification.~~The Contractor shall supply 80% of the fuel filled LP tank with cold climate antifreeze additive.~~

~~**3.4.3** The LP tank shall be installed and located in accordance with the applicable plumbing construction code and on an elevated crushed stone.~~

3.5 Network Management/Monitoring.

3.5.1 The Contractor shall use SSH and/or HTTPS for device configuration management.

3.5.2 Telnet and http can be used during the initial configuration but shall be disabled after the initial set-up.

3.5.3 The Contractor shall configure manageable devices for SNMP v1 or v2. SNMP v3 is highly desirable for remote monitoring whenever it is supported.

3.5.4 The Contractor shall configure non-manageable devices to be pingable.

3.5.5 If the design requires a device that does not meet the network management/monitoring requirements, then the Contractor shall clearly state this in their proposal.

3.5.6 All devices that use a local console port shall include the appropriate cable to connect to a PC.

3.6 The Contractor shall provide adequate cable entry ports and conduit engross and egress to support the project plan.