

## SECTION 13592

# ROADWAY WEATHER INFORMATION SYSTEM - ENVIRONMENTAL SENSOR STATION (RWIS-ESS)

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. RWIS site preparation: install buried conduit per industry standard and associated junction boxes with grounding rods, tower foundation, and fence installation per design plans or as directed by UDOT representative.

#### 1.2 RELATED SECTIONS

- A. Section 02324: Compaction
- B. Section 02330: Embankment
- C. Section 02776: Concrete Sidewalk, Median Filler, and Flatwork
- D. Section 02821: Chain Link Fencing and Gates
- E. Section 03055: Portland Cement Concrete
- F. Section 03211: Reinforcing Steel and Welded Wire
- G. Section 03310: Structural Concrete
- H. Section 13553: ATMS Conduit
- I. Section 13554: Polymer Concrete Junction Box

#### 1.3 REFERENCES

- A. National Electric Code (NEC)
- B. ANSI/UL 467

## **PART 2 PRODUCTS**

### **2.1 POWER**

- A. Use electrical components as listed and defined by the National Electric Code (NEC).
- B. Supply and install conduit, ground rods (NEC 250-1), and junction boxes per Sections 13553 and 13554. Install in each conduit a detectable pull tape. Refer to Section 13553.
- C. Install solar power array and connect with RPU per manufacturer's specifications.

### **2.2 RPU TOWER FOUNDATION AND SERVICE PAD**

- A. Obtain proper compaction according to Section 02324
- B. Use Class AA (AE) concrete per Section 03055.

### **2.3 TOWER GROUNDING SYSTEM**

- A. Wire: 32 strand, #210 weight, 7/16 inch tinned copper ground cable. For all three legs, starting from the outside ground rod, clamp wire and run wire to the ground rod three feet from the tower. Clamp the wire to the ground rod. **DO NOT cut the wire.** Run the wire across the top of the concrete pad (Refer to Section 02776) to the corner of the RWIS tower. Grounding wire to be attached to the tower.
- B. Ground Rod: 5/8 inch diameter 8 foot copper clad. Two per corner; one, 3 feet away and one, 10 feet away. ANSI/UL 467.

### **2.4 ENVIRONMENTAL SENSORS, REMOTE PROCESSING UNIT (RPU), COMMUNICATION EQUIPMENT, AND TOWER**

- A. All sensors to be installed by the Department.

### **2.5 FENCE AND GATE**

- A. Follow Department provided design specification.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

- A. Conform to the requirements of the National Electric Code (NEC).
- B. Tower site location and pavement sensor placement must be approved on site by the Engineer prior to construction.
- C. Provide a preliminary installation schedule to the Engineer 30 days prior to start of work.
- D. Pick up State-furnished materials at the following:
  - Utah Department of Transportation
  - Traffic Operations Center (TOC)
  - 2060 South 2760 West
  - Salt Lake City, Utah 84104-4592
- E. Contact the Engineer seven calendar days before pick-up date.
- F. Install all State-furnished materials per manufacturers instructions, unless noted otherwise.

### **3.2 RPU TOWER FOUNDATION AND TOWER**

- A. Follow Sections 03055 and 03211.
- B. Provide all necessary grading for a flat and level site.
- C. Finish all surface concrete with Ordinary Surface Finish per Section 03310.
- D. Embankments to be installed per Section 02330.
- E. Do not weld conduit to tower. Follow manufacturers installation instructions.
- F. Place the concrete directly into the excavation. Use minimum forming above ground.
- G. RPU tower to be installed by the Department.

### **3.3 PAVEMENT SENSORS**

- A. To be installed by the Department.

### **3.4 CABINET PROCESSING UNIT**

- A. To be installed by the Department.

### **3.5 COMMUNICATION EQUIPMENT**

- A. To be installed by the Department.

### **3.6 FENCE AND GATE**

- A. Furnish and install Chain Link Fence and Gate per Section 02821.
- B. Furnish and install 7-foot high Type IV fence, with barbed wire and arm, with 5-foot wide gates.
- C. Install fence gates and size the fence dimensions per manufacturer or Department specifications.

END OF SECTION