

1 Make this Section a part of the Standard Specifications:
2

3 **“SECTION 676 – BRIDGE MONITORING SYSTEM**
4
5

6 **676.01 Description.** This section describes bridge monitoring system which will
7 be installed to measure drilled shaft plumbness, monitor scour and water levels, and
8 cameras for monitoring conditions at the site. All individual systems shall be wireless
9 and either solar powered or powered by batteries with a minimum 10 year life.
10

11 **676.02 Materials.** None.
12

13 **676.03 Construction.**
14

15 **(A) Submittals.**
16

17 **(1)** Submit (6) sets of materials and equipment purchase requisition
18 including copies of the equipment list and materials within 60 days of
19 award of this contract. All items are subject to the Engineer's approval.
20

21
22 **(2)** Submit (6) sets of manufacturer's brochures, catalog cuts,
23 installation manuals, operation manuals, maintenance manuals, and
24 shop drawings within 60 days of award of this contract. All items are
25 subject to the Engineer's approval.
26

27
28 **(3)** Shop drawings shall include locations of the individual
29 components, dimensions, sections and call-outs of all materials,
30 anchorages, and accessory items.
31

32 **(4)** Submit a system test plan that incorporates all items of work.
33 The system test plan shall describe the tests and procedures for the
34 on-site testing of the installed system. Testing of the completed system
35 shall meet the approval of the Engineer.
36

37 **(B) Products.**
38

39 **(1)** All components shall be protected from the elements in highly
40 corrosive resistant containment systems. Containment system shall
41 also be able to be secured from theft and vandalism. Exposed
42 elements shall be stainless steel or other corrosion resistant and
43 ultraviolet resistant materials.
44

45 **(2)** Replacement parts shall be readily available.

(3) Storage and handling shall follow all manufacture's recommendations.

(4) Installation shall follow all manufacturer's recommendation.

(C) Software.

(1) Software shall be provided to run all systems. All systems shall be accessible from a remote location.

(2) Thirty six months of cellular data service and cloud based storage shall be included with the system.

(D) Installation and Training.

(1) Installation shall follow all manufacturer's recommendations.

(2) The manufacturer shall provide onsite system installation assistance.

(3) The manufacturer shall provide training for State personnel on the use of the system.

676.04 Measurement. The Engineer will measure the SensSpot Wireless High-Resolution 2D Inclination/Tilt Monitoring System or Approved Equal, Wireless Scour Probe, Wireless Water Level Sensors, and the Cellular (3G HSPA) Solar Powered Camera per each in accordance with the contract documents.

On Site Installation Assistance and Training, Software License, and Cellular Data Service and Cloud Storage for 36 Months will be paid on a lump sum basis. Measurement for payment will not apply.

676.05 Payment. The Engineer will pay for the SensSpot Wireless High-Resolution 2D Inclination/Tilt Monitoring System or Equivalent, Wireless Scour Probe, Wireless Water Level Sensors, and the Cellular (3G HSPA) Solar Powered Camera per each complete in place. Payment will be full compensation for work prescribed in this section and in the contract documents.

The Engineer will pay for the accepted On Site Installation Assistance and Training, Software License, and Cellular Data Service and Cloud Storage for 36 Months on a contract lump sum basis. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the following pay item when included in the proposal

ER-23(001)

676-2a

9/30/20

92 schedule:

93

94 **Pay Item**

Pay Unit

95

96 SenSpot Wireless High-Resolution 2D Inclination/Tilt Monitoring
97 System or Equivalent

Each

98

99 Wireless Scour Probe for Sediment Level Monitoring,
100 Stainless Steel, Four Sensing Glands, 6 Inch Increments

Each

101

102 Wireless Water Level Sensors

Each

103

104 Cellular (3G HSPA) Solar Powered Camera

Each

105

106 On Site Installation Assistance and Training

Lump Sum

107

108 Software License

Lump Sum

109

110 Cellular Data Service and Cloud Storage for 36 months

Lump Sum"

111

112

113

114

115

116

END OF SECTION 676