MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
STEEL STRAIN POLE

SIG:EMS 1 of 2 APPR:NAP:POJ:04-29-20
FHWA:APPR:05-05-20

a. Description. This work consists of furnishing, fabricating, and erecting a traffic signal steel strain pole as shown on the plans, in accordance with the standard specifications, and as specified herein. This special provision is for an anchor base type (six anchor bolt system) strain pole and includes all other associated hardware required to complete the work.

b. Material. Provide material in accordance with sections 906, 908, and 921 of the Standard Specifications for Construction and this special provision.

Ensure strain pole meets *ASTM A572/A572M, Grade 50* or *ASTM A595/A595M, Grade A*. Ensure base plate meets *ASTM A36/A36M*. Blast clean fabricated components to remove mill scale and welding slag before galvanizing. Galvanize strain pole and components in accordance with *AASHTO M111M/M111*.

Ensure bolts, nuts, and washers meet subsection 906.07 of the Standard Specifications for Construction.

Stainless steel must meet *AISI* (American Iron and Steel Industry) 300 series.

Acceptance of strain pole is based on general certification in accordance with MDOT's materials quality assurance procedures manual.

c. Fabrication. Ensure fabrication and welding is in accordance with *American Welding Society (AWS) D1.1:2010*, Structural Welding Code-Steel (as modified by the current 20SP-707A - Structural Steel and Aluminum Construction), hereafter called *AWS D1.1*, except as modified herein.

Fabricator must possess a valid *American Institute of Steel Construction (AISC)* Bridge Component Quality Management System Certification (CPT).

Submit shop drawings in Portable Document Format (PDF) to the Engineer for approval in accordance with subsection 104.02 of the Standard Specifications for Construction prior to commencing fabrication. Fabricate strain pole as detailed in the contract.

Ensure all welds are 100 percent visual test (VT) inspected by an *AWS* certified welding inspector (CWI). Ensure all fillet welds are 25 percent magnetic particle test (MT) inspected by a technician qualified in accordance with *American Society of Nondestructive Testing (ASNT) Level II*, except fillet welds used to secure strain pole cap detail. Perform MT inspection in conformance with *ASTM E709* with dry powder using the yoke method. Use half-wave rectified alternating current (direct current) for MT inspection. Ensure all complete joint penetration (CJP) welds are 100 percent ultrasonic test (UT) inspected by a technician qualified in accordance with *ASNT Level II*.

1. Base plate warpage must not exceed 1/16 inches per foot.

2. Tolerance for overall length of strain pole is ±1/8 inch. Tolerance for sweep and camber of strain pole 1/8 inch per 10 foot. Tolerance for twist of strain pole is ±10 degrees.

3. Strain pole wall may be single or multi-ply.

4. Strain pole cannot have more than one longitudinal weld. Transverse welds are prohibited.

d. Erection. Snug tighten anchor bolts in accordance with subsection 810.03.N.2 of the Standard Specifications for Construction.

Ensure all installation procedures are witnessed by the Engineer.

e. Construction. Ensure all work is in accordance with subsection 810.03 and sections 819 and 820 of the Standard Specifications for Construction and the contract.

For repair coating, apply a coating 1½ times the thickness or thickness equivalent specified for galvanizing on the item, but not less than 5 mils. Use zinc-based solder, zinc-rich primer, or zinc metallizing in accordance with *ASTM A780/A780M*. Obtain the Engineer's approval before using zinc metalizing.

f. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
Strain Pole, Steel, 6 bolt, __ foot	Each

Strain Pole, Steel, 6 bolt, __ foot includes furnishing all materials, fabrication, shop cleaning, galvanizing, shipping, and erection.

No extension of time or additional compensation will be granted due to obtaining the proper *AISC* certifications and/or endorsements required for this project.

Construction of the foundation will be included in other items.