Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

July 22, 2025

Abi Domond
Civil Rights Analysis Intern
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section:
Proposed Specification: **6490202 Galvanized Steel Poles, Mast Arms, and Monotube Assemblies.**

Dear Ms. Domond:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Adrian Steele to remove the requirement related to obtaining materials from audited facilities.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/jb
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

**GALVANIZED STEEL POLES, MAST ARMS, AND MONOTUBE ASSEMBLIES (REV 5-13-25)**

SUBARTICLE 649-2.2 is deleted and the following substituted:

**649-2.2 Pole Assembly:** Use pole assemblies as shown in the Standard Plans when standard mast arm assemblies, standard strain pole assemblies, or standard steel CCTV pole assemblies are required by the Contract Documents.

~~Obtain poles, assemblies from a fabrication facility that is listed on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.~~

Obtain poles and mast arms from a fabrication facility that is approved in one of the following fabrication categories:

1. American Institute of Steel Construction, Highway Component Manufacturer
2. American Welding Society, Certified Welding Fabricator
3. Canadian Welding Bureau, Fusion Welding of Aluminum (W47.2)

SUBARTICLE 649-4.3.1 is deleted and the following substituted:

**649-4.3.1 General:** ~~When required by the Contract Documents, provide painted poles, mast arms and monotube assemblies. Provide products from a fabricator on the Department's list of Prequalified Painted Galvanized Steel and Aluminum Products Fabricators List. Provide products that will meet specification requirements throughout the warranty period. Meet the color requirement as specified in the Contract Documents.~~ Provide the Engineer with two metal sample coupons, a minimum of 2 inches by 4 inches, painted concurrently and with the same paint as was used on the first LOT of any poles, mast arms and monotube assemblies delivered to the jobsite. Submit sample coupons and manufacturer product data sheets to the Engineer along with the delivery of the first shipment of any painted poles, mast arms or monotube assemblies delivered to the jobsite. At the time of their delivery, the sample coupons described in this paragraph shall match the color of the poles, mast arms and monotube assemblies to within ~~1ΔE~~ 1 unit when measured as specified in 975-4. The Engineer will perform a visual color comparison between the delivered products and sample coupons. The Engineer may evaluate and document any color difference by measuring as specified in 975-4. If the delivered sample coupons exhibit a difference in color from the poles, mast arms and monotube assemblies greater than 1 unit~~ΔE~~ then the sample coupons ~~will be considered~~ are unacceptable and future warranty comparisons for the LOT shall be based on the color measurement of the corresponding structures. ~~no payment shall be made for the materials which the sample coupons represent. Those materials shall not be accepted by the Department until acceptable representative sample coupons in accordance with the requirements of this Section have been submitted to the Engineer.~~

ARTICLE 649-7 is deleted and the following substituted:

**649-7 Installation.**

Install foundations in accordance with Section 455. Do not install poles, mast arm poles, or monotubes until the foundation has achieved 70% of the specified 28-day concrete strength and verifying test results have been submitted to the Engineer. Determine concrete strength from tests on a minimum of two test cylinders prepared and tested in accordance with ASTM C31 and ASTM C39. Before erecting the pole, clean the top of the foundation of any laitance, oils, grease or any other deleterious materials. Erect strain poles in an orientation which considering the rake and the application, cable forces will produce a plumb pole. Erect monotubes plumb at the time of installation. Plumb the pole supporting mast arms after the mast arms, traffic signals or sign panels have been placed.

If the traffic signals and/or sign panels are not in place within two working days after the mast arm is erected, furnish and install a 3 foot x 2 foot blank sign panel on the bottom of each mast arm within 6 feet of the mast arm tip and plumb the pole. Re-plumb the pole supporting mast arms after installation of traffic signals and sign panels.

Install ASTM F3125, Grade A325 bolt, nut, and washer assemblies in accordance with the following. Use bolt, nut and washer assemblies that are free of rust and corrosion and are lubricated properly as demonstrated by being able to easily hand turn the nut on the bolt thread for its entire length. Tighten nuts to a snug-tight condition to bring the faying surfaces of the assembly into firm contact with plies solidly seated against each other, but not necessarily in continuous contact. Snug-tight is defined as the maximum nut rotation resulting from the full effort of a person using an ordinary spud wrench. Visually inspect the connection after snugging all bolts, ensuring firm contact has been achieved at a minimum between faying surfaces beneath bolts within one bolt diameter of bolt hole edges. Re-snug bolts in a connection where faying surfaces are not in firm contact. After bringing the faying surfaces to a snug-tight condition, tighten nuts in accordance with Table 460-6~~7~~, Nut Rotation from the Snug-Tight Condition. Maintain as close to uniform contact pressure as possible on the faying surfaces during snugging and turn-of-nut process by utilizing suitable erection methods and a bolt tightening pattern that balances the clamping force of each bolt, as closely as possible, with the equal clamping force of a companion bolt.

For the purposes of this Specification, the anchor nuts (full-height) are installed on top of the plate washers and below the retainer nuts (half-height or full-height). Base plate installation steps are as follows:

1. Clean and lubricate the exposed threads of all anchor bolts. Clean and lubricate the threads and bearing surfaces of all nuts. Use hardware lubricants approved by the hardware manufacturer. Re-lubricate the exposed threads of the anchor bolts and the threads and bearing surfaces of nuts if more than 24 hours has elapsed since earlier lubrication, or if the anchor bolts and nuts have become wet since they were first lubricated.

2. Verify that each leveling nut can be turned onto the bolts past the elevation corresponding to the final elevation of the bottom of the leveling nut and be turned by the effort of a person using an ordinary spud wrench, without employing a pipe extension on the wrench handle.

3. Turn the leveling nuts onto the anchor bolts and align the nuts to the same elevation less than or equal to one anchor bolt diameter from the top of the foundation.

4. Place structural plate washers on top of the leveling nuts; one washer on each anchor bolt.

5. Install the base plate onto the leveling nut washers, place structural plate washers on top of the base plate; one washer on each anchor bolt, and turn anchor nuts onto the anchor bolts.

6. Tighten anchor nuts against the top of the structural plate washers and base plate to a snug-tight condition in a star pattern. A star tightening pattern is one in which the nuts on opposite or near opposite sides of the bolt circle are successively tightened in a pattern resembling a star. For an 8-bolt circle with bolts sequentially numbered 1 to 8, tighten nuts in the following bolt order: (1, 5, 7, 3, 8, 4, 6, 2).

7. Tighten leveling nuts to a snug-tight condition in a star pattern. The distance from the bottom of the leveling nuts to the top of the concrete must not exceed one anchor bolt diameter after tightening.

8. Before final tightening of the anchor nuts, mark the reference position of each snug-tight anchor nut on one flat with a corresponding reference mark on the base plate. Incrementally turn the anchor nuts using a star pattern until achieving the required nut rotation specified in Table 649-1. Tighten the anchor nuts in two tightening cycles (passes), each approximately one-half the required amount of rotation, up to the final rotation in Table 649-1. After tightening, verify the anchor nut rotation with respect to the reference mark on the base plate. Do not exceed the Table 649-1 value by more than 20 degrees.

9. Turn retainer nuts onto the anchor bolts and tighten each until it is in firm contact with the top surface of the anchor nut. Hold the anchor nut to prevent rotation and tighten the retainer nuts to a snug-tight condition. The final condition is an anchor nut that is rotated with respect to the reference mark on the base plate in accordance with Table 649-1, and a retainer nut that is snug-tight with respect to the anchor nut.

10. Install a screen over the gap between the base plate and foundation concrete in accordance with 649-8, or place a structural grout pad in accordance with 649-9.

| Table 649-1 | |
|---|---|
| Anchor Bolt Diameter (inches) | Nut Rotation from Snug-Tight Condition |
| ≤ 1-1/2 | 1/3 turn |
| > 1-1/2 | 1/6 turn |

**649-7.1 Camera Lowering Device Installation:** Meet the requirements of 641-4.4.

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