



Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

KEVIN J. THIBAUT, P.E.
SECRETARY

January 24, 2022

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: **646**
Proposed Specification: **6460000 Aluminum Poles, Pedestals, and Posts.**

Dear Mr. Nguyen:

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

This change was proposed by Rick Jenkins from the Roadway Design Office to update material formatting, delete redundant language, and remove Class I concrete as an option to reference Class II.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to 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/ra

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

ALUMINUM POLES, PEDESTALS, AND POSTS (REV 11-10-21)

SECTION 646 is deleted and the following substituted:

646-1 Description.

The work in this Section consists of furnishing and installing aluminum poles, pedestals, and posts at the locations shown in the Plans and in accordance with the details shown in the Plans and Standard Plans, subject to a five-year warranty period as defined herein. The warranty period will apply only when aluminum poles, pedestals, and posts are painted as called for in the Contract Documents. An aluminum pedestal consists of a pole and a transformer base.

646-2 Materials.

Meet the following requirements:

Portland Cement Concrete*Section 346

Anchor Bolts and ShimsSection 962

Poles and Posts.....Section 965

Transformer Base**Section 965

*Class II

**Use products listed on the Department's Approved Products List (APL)

~~646-2.1 Poles and Posts: Use nominal 4 inch diameter Schedule 40 aluminum poles and posts meeting the requirements of The Aluminum Association Alloy 6061-T6 and ASTM B429. Poles used with transformer bases must be threaded with No. 8 NPT threads. Sufficient threads are required to fully seat the pole into the hub of the pedestal base.~~

~~646-2.2 Transformer Base: Use transformer bases listed on the Department's Approved Product List (APL).~~

~~Manufacturers seeking APL approval of proprietary transformer bases must submit an application in accordance with Section 6, independent laboratory test report, and calculations and drawings showing details, notes, materials, dimensions, and sizes that the transformer base meets the following requirements:~~

~~1. Materials: Meets the material requirements of Aluminum Association Alloy 319 or 356-T6 and ASTM B26 or ASTM B108.~~

~~2. Height: Base is 12 to 18 inches in height with a threaded hub at the top for mounting a nominal 4 inch Schedule 40 aluminum pole. The threaded hub must be tapped to allow full pole engagement.~~

~~3. Fastening: Provides for fastening to a foundation with four 3/4 inch anchor bolts located 90 degrees apart. The bolt circle diameter must be in accordance with the base manufacturer recommendations. The base design must allow for bolts that are placed off-center.~~

~~4. Door: Provides a door opening of not less than 8 inches by 8 inches. The door must be constructed of fiberglass or other non-combustible, non-aluminum material. Attach the door to the base with cleats and one stainless steel socket button head screw or by other means suitable for NEMA 3 electrical enclosures.~~

~~5. Moment Capacity: Supports an ultimate moment capacity of 10,000 foot-pounds. Submit certified test reports from the manufacturer verifying that each base model meets the moment capacity without breaking, cracking or rupturing in any manner.~~

~~6. Breakaway: Meets the requirements in the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. Submit the FHWA certification for product approval.~~

~~7. Identification: Is legibly and visibly marked with the manufacturer's name or logo and the model number.~~

646-2.23 Anchor Bolts: Provide ~~ASTM F1554~~ Grade 55 anchor bolts, 3/4-inch diameter, 18-inches long, with double nuts ~~per ASTM F1554 Grade 55~~. For each bolt, provide two 3/4-inch ~~ASTM A563 Grade A or higher~~ heavy hex nuts and one 3/16-inch thick by 3-inch round ~~ASTM A36~~ plate washer or one ~~ASTM F436~~ Type 1 washer. ~~Anchor bolts, washers and hex nuts must be galvanized in accordance with ASTM F2329.~~

646-2.34 End Caps: Provide end caps sized for nominal 4-inch ~~diameter~~ Schedule 40 ~~4-1/2-inch outside diameter~~ aluminum poles. The cap must be a minimum of 1/4-inch thick and tapped for at least two set screws. Set screws will be provided with the end cap.

646-2.45 Shims: Provide U-shaped galvanized steel shims 2-inches wide by 2-1/2 inches long, shaped to fit around a 3/4-inch anchor bolt.

~~646-2.6 Concrete: Use Class 1 concrete meeting the requirements of Section 346.~~

646-3 Coatings.

646-3.12.7 Painting:

646-3.1.12.7.1 General: When required by the Contract Documents, provide painted aluminum poles, pedestals, and posts. 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 aluminum poles, pedestals, and posts 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 aluminum poles, pedestals, and posts delivered to the jobsite. At the time of their delivery, the sample coupons described in this paragraph must match the color of the aluminum poles, pedestals, and posts to within 1ΔE measured as specified in 975-4. If the delivered sample coupons exhibit a difference in color from the poles, pedestals, and posts greater than 1ΔE then the sample coupons will be considered unacceptable and 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.

646-3.1.22.7.2 Responsible Party Warranty: When the Contract Documents call for painted aluminum poles, pedestals, and posts, the Contractor shall designate a responsible party to accept responsibility. The responsible party designated by the Contractor must execute and submit to the Department a form, provided by the Department, prior to the first delivery to the jobsite of any painted aluminum poles, pedestals, and posts, stipulating that the responsible party accepts responsibility for ensuring the coating system adhesion and color retention requirements as specified in 975-4 are met for a period of five years after final acceptance in accordance with 5-11. The responsible party shall also bear the continued responsibility for performing all remedial work associated with repairs of any adhesion or color retention failure as defined in Section 975, as to which notice was provided to the responsible party within the five

year warranty period. Failure to timely designate the responsible party will result in the Contractor being the responsible party unless otherwise agreed to in writing by the Department. The responsible party shall be either the Contractor or the supplier of the painted aluminum poles, pedestals, and posts. When the responsible party is the fabricator, the responsible party shall be one of the fabricators listed on the Prequalified Painted Galvanized Steel and Aluminum Products Fabricators List. This list may be viewed on the Department's website at the following URL: <https://www.fdot.gov/construction/Engineers/PaintedPoleSuppliers.shtm>.

Upon final acceptance of the Contract in accordance with 5-11, the Contractor's responsibility to ensure that the coating system adhesion and color retention requirements specified in 975-4 will terminate. The obligations of the responsible party set forth in this Section shall start at final acceptance of the Contract in accordance with 5-11 and continue thereafter until expiration of the five-year warranty period.

646-43 Remedial Work.

During the painting warranty period, the responsible party shall perform all painting remedial work necessary to meet the requirements of this Specification at no cost to the Department. Such remedial work shall be performed within 180 days of notification of a failure by the Department or by the determination of the Statewide Disputes Review Board. Failure to perform such remedial work within the time frame specified will result in the work being performed by other forces at the responsible party's cost.

If the responsible party is the fabricator, the fabricator will be removed from the Prequalified Painted Galvanized Steel and Aluminum Products Fabricators List for a minimum of six months or until payment in full for the correction of the deficiencies or defects has been made, whichever is longer.

If the responsible party is the Contractor, the Department will suspend, revoke, or deny the responsible party's certificate of qualification under the terms of Section 337.16(d)(2), Florida Statutes, for a minimum of six months or until payment in full for the correction of the deficiencies or defects has been made, whichever is longer.

646-54 Statewide Disputes Review Board.

The Statewide Disputes Review Board in effect for this Contract will resolve any and all disputes that may arise involving administration and enforcement of this Specification related to the painting remedial work performed during the warranty period. The Responsible Party and the Department acknowledge that use of the Statewide Disputes Review Board is required, and the determinations of the Statewide Disputes Review Board for disputes arising out of this Specification will be binding on both the Responsible Party and the Department, with no right of appeal by either party. Meet the requirements of 8-3.

646-65 Installation.

646-65.1 General: Verify the length of the column supports in the field prior to fabrication to permit the appropriate sign or signal height.

646-65.2 Foundations: Construct foundations in accordance with the applicable Standard Plans.

The Contractor may use precast foundations in augered or excavated holes that are a minimum of 12 inches larger than each axis dimension of the precast foundation. The holes must be clean and without loose material. Obtain precast foundations from a manufacturing plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on

the list shall meet the requirements of Section 105. Fill the voids around precast foundations with flowable fill meeting the requirements of Section 121 or clean sand placed using hydraulic methods to a level of 6 inches below grade.

646-65.3 Setting Anchor Bolts: Set anchor bolts 90 degrees apart with a bolt circle diameter of 14 inches. Adjust anchor bolts to a plumb line and hold rigidly in position to prevent displacement while pouring concrete.

646-65.4 Installation: Do not erect poles until the concrete strength is at least 2500 psi. Plumb the poles after erection using shims if necessary to obtain precise alignment.

646-65.5 Grounding: Meet the requirements of Section 620 and the applicable Standard Plans.

646-76 Method of Measurement.

The Contract unit price per each for aluminum pedestals and posts, furnished and installed, will include all materials and equipment as specified in the Contract Documents, and all labor and materials necessary for a complete and accepted installation.

Payment for removal of aluminum poles will include the complete removal of the pole and foundation, pedestrian detector and pedestrian signal. Separate payment for the removal of the pedestrian detector and pedestrian signal will be made only when the pole/pedestal is to remain.

Payment for grounding will be incidental to the pedestal or post.

646-87 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 646- Aluminum Poles - per each.

ALUMINUM POLES, PEDESTALS, AND POSTS
(REV 11-10-21)

SECTION 646 is deleted and the following substituted:

646-1 Description.

The work in this Section consists of furnishing and installing aluminum poles, pedestals, and posts at the locations shown in the Plans and in accordance with the details shown in the Plans and Standard Plans, subject to a five-year warranty period as defined herein. The warranty period will apply only when aluminum poles, pedestals, and posts are painted as called for in the Contract Documents. An aluminum pedestal consists of a pole and a transformer base.

646-2 Materials.

Meet the following requirements:

Portland Cement Concrete*Section 346
Anchor Bolts and ShimsSection 962
Poles and Posts.....Section 965
Transformer Base**Section 965

*Class II

**Use products listed on the Department's Approved Products List (APL)

646-2.1 Poles and Posts: Poles used with transformer bases must be threaded with No. 8 NPT threads. Sufficient threads are required to fully seat the pole into the hub of the pedestal base.

646-2.2 Anchor Bolts: Provide Grade 55 anchor bolts, 3/4-inch diameter, 18-inches long, with double nuts. For each bolt, provide two 3/4-inch heavy hex nuts and one 3/16-inch thick by 3-inch round plate washer or one Type 1 washer.

646-2.3 End Caps: Provide end caps sized for nominal 4-inch Schedule 40 4-1/2-inch outside diameter aluminum poles. The cap must be a minimum of 1/4-inch thick and tapped for at least two set screws. Set screws will be provided with the end cap.

646-2.4 Shims: Provide U-shaped galvanized steel shims 2-inches wide by 2-1/2 inches long, shaped to fit around a 3/4-inch anchor bolt.

646-3 Coatings.

646-3.1 Painting:

646-3.1.1 General: When required by the Contract Documents, provide painted aluminum poles, pedestals, and posts. 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 aluminum poles, pedestals, and posts 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 aluminum poles, pedestals, and posts delivered to the jobsite. At the time of their delivery, the sample coupons described in this paragraph must match the color of the aluminum poles, pedestals, and posts to within 1ΔE measured as specified in 975-4. If the delivered sample coupons exhibit a difference in color from the poles, pedestals, and posts greater than 1ΔE then

the sample coupons will be considered unacceptable and 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.

646-3.1.2 Responsible Party Warranty: When the Contract Documents call for painted aluminum poles, pedestals, and posts, the Contractor shall designate a responsible party to accept responsibility. The responsible party designated by the Contractor must execute and submit to the Department a form, provided by the Department, prior to the first delivery to the jobsite of any painted aluminum poles, pedestals, and posts, stipulating that the responsible party accepts responsibility for ensuring the coating system adhesion and color retention requirements as specified in 975-4 are met for a period of five years after final acceptance in accordance with 5-11. The responsible party shall also bear the continued responsibility for performing all remedial work associated with repairs of any adhesion or color retention failure as defined in Section 975, as to which notice was provided to the responsible party within the five year warranty period. Failure to timely designate the responsible party will result in the Contractor being the responsible party unless otherwise agreed to in writing by the Department. The responsible party shall be either the Contractor or the supplier of the painted aluminum poles, pedestals, and posts. When the responsible party is the fabricator, the responsible party shall be one of the fabricators listed on the Prequalified Painted Galvanized Steel and Aluminum Products Fabricators List. This list may be viewed on the Department's website at the following URL: <https://www.fdot.gov/construction/Engineers/PaintedPoleSuppliers.shtm>.

Upon final acceptance of the Contract in accordance with 5-11, the Contractor's responsibility to ensure that the coating system adhesion and color retention requirements specified in 975-4 will terminate. The obligations of the responsible party set forth in this Section shall start at final acceptance of the Contract in accordance with 5-11 and continue thereafter until expiration of the five-year warranty period.

646-4 Remedial Work.

During the painting warranty period, the responsible party shall perform all painting remedial work necessary to meet the requirements of this Specification at no cost to the Department. Such remedial work shall be performed within 180 days of notification of a failure by the Department or by the determination of the Statewide Disputes Review Board. Failure to perform such remedial work within the time frame specified will result in the work being performed by other forces at the responsible party's cost.

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646-5 Statewide Disputes Review Board.

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Department acknowledge that use of the Statewide Disputes Review Board is required, and the determinations of the Statewide Disputes Review Board for disputes arising out of this Specification will be binding on both the Responsible Party and the Department, with no right of appeal by either party. Meet the requirements of 8-3.

646-6 Installation.

646-6.1 General: Verify the length of the column supports in the field prior to fabrication to permit the appropriate sign or signal height.

646-6.2 Foundations: Construct foundations in accordance with the applicable Standard Plans.

The Contractor may use precast foundations in augered or excavated holes that are a minimum of 12 inches larger than each axis dimension of the precast foundation. The holes must be clean and without loose material. Obtain precast foundations from a manufacturing plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105. Fill the voids around precast foundations with flowable fill meeting the requirements of Section 121 or clean sand placed using hydraulic methods to a level of 6 inches below grade.

646-6.3 Setting Anchor Bolts: Set anchor bolts 90 degrees apart with a bolt circle diameter of 14 inches. Adjust anchor bolts to a plumb line and hold rigidly in position to prevent displacement while pouring concrete.

646-6.4 Installation: Do not erect poles until the concrete strength is at least 2500 psi. Plumb the poles after erection using shims if necessary to obtain precise alignment.

646-6.5 Grounding: Meet the requirements of Section 620 and the applicable Standard Plans.

646-7 Method of Measurement.

The Contract unit price per each for aluminum pedestals and posts, furnished and installed, will include all materials and equipment as specified in the Contract Documents, and all labor and materials necessary for a complete and accepted installation.

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Payment for grounding will be incidental to the pedestal or post.

646-8 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section.

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Item No. 646- Aluminum Poles - per each.