Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

KEVIN J. THIBAULT, P.E.
SECRETARY

December 15, 2020

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

Re: State Specifications Office
Section: **991**
Proposed Specification: **9910000 CHANNELIZING DEVICE MATERIALS.**

Dear Mr. Nguyen:

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

The changes are proposed by Gevin McDaniel from the Roadway Design Office to add appropriate materials requirements for channelizing devices to the Standard Specification.

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 414-4130.

Sincerely,

Signature on file

Daniel Strickland, P.E.
State Specifications Engineer

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

CHANNELIZING DEVICE MATERIALS
(REV ~~10-5~~12-14-20)

The following new Section is added after Section 990.

SECTION 991
CHANNELIZING DEVICE MATERIALS

991-1 Durable Tubular Markers

991-1.1 General.

This subarticle describes the material requirements for tubular markers installed in accordance with Section 704. All Durable Tubular Marker products shall be listed on the Department's Approved Products List (APL).

991-1.2 Dimensions.

The post shall have a minimum diameter of 3 inches. The base of the tubular marker shall have a maximum dimension in any direction of 8 inches. The height of the tubular marker above the pavement surface shall be 36 inches.

991-1.3 Color.

Tubular Marker color must be uniform and integral throughout entire height of the post. The base may be black in color.

991-1.3.1 White.

The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1347 or ASTM E1164.

991-1.3.2 Yellow.

The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1347 or ASTM E1164.

991-1.4 Retroreflective Sheeting.

The color of the retroreflective sheeting shall match the color of the tubular marker. The retroreflective sheeting shall be abrasion resistant Type IV or Type V and meet the requirements of Section 994. The retroreflective sheeting shall meet supplementary requirements for reboundable sheeting as stated in section S.2 of ASTM D4956. The sheeting shall wrap around the entire circumference of the tube and have a minimum vertical dimension of ~~6~~10 inches. The top of sheeting shall be 1-1/2 inches plus or minus 1/2 inch below the top of post.

991-1.5 Product Testing.

Manufacturers seeking evaluation of Durable Tubular Markers must include test reports from the National Transportation Product Evaluation Program (NTPEP) documenting the product meets the requirements of this Section. NTPEP impact testing must be performed on each substrate (concrete and open-graded friction course asphalt) in accordance with NTPEP Evaluation of Temporary Traffic Control Devices: Flexible Delineators for the category of High Speed Applications and for hot weather test temperature only.

Impact tests shall be performed only on tubular markers measuring 36 inches above the pavement surface.

Products listed on the IPL for Managed Lane Markers prior to July 2021 will be acceptable on projects until June 30, 2022 to allow a grace period to complete the required testing.

Acceptable products are those ~~listed on the IPL for Managed Lane Markers prior to July 2021 or those~~ meeting the following requirements after receiving an average of 75- bumper impacts per sample and an average of 175- tire impacts per sample:

1. All posts shall self-restore to within 15- degrees list or lean from vertical.

2. All posts shall have a minimum of 50%- of its cross-section, at any point along the post height, free of tears or cracks.

991-1.6 Approved Product List Submission Requirements.

Manufacturers seeking evaluation of Durable Tubular Marker products for inclusion on the APL shall submit an application in accordance with Section 6 and include the following documentation.

Table 991-1

Documentation	**Requirement**
Product Photo	Displays the significant features of the product.
Technical Data Sheet, marker and adhesive	Uniquely identifies the product and includes product specifications, storage instructions, and recommended installation materials and equipment as applicable.
Safety Data Sheet, Adhesive	SDS meeting OSHA requirements for product and manufacturer recommended installation materials as applicable.
National Testing Product Evaluation Program (NTPEP) product testing report	See Section -991-1.5
Installation Instructions	Include mounting surface preparations, and touch-up and repair procedures. Separate installation instructions are required for different substrates.
Product Sample	Upon request from the Department, submit a sample of the tubular marker mounting material or hardware. If the product is a system comprised of multiple parts, a sample of each part must be submitted.

991-2 Standard Tubular Markers:

991-2.1 General.

This subarticle describes the material requirements for tubular markers installed in accordance with Section- 704. All Standard Tubular Marker products shall be listed on the Department's Approved Products List (APL). Standard Tubular Markers must be approved for project-specific use with an issued project-specific pay item.

991-2.2 Dimensions.

The post shall have a minimum diameter of 2- inches. The minimum height of the tubular marker above the pavement surface shall be 36- inches.

991-2.3 Color.

Tubular Marker color must be uniform and integral throughout entire height of the post. The base may be black in color.

991-2.3.1 White.

The yellowness index shall not exceed 12, tested in accordance with ASTM E313. The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 70, tested in accordance with ASTM E1347 or ASTM E1164.

991-2.3.2 Yellow.

The daytime 45 degrees, 0 degrees luminance factor, Cap Y, shall be a minimum of 60, tested in accordance with ASTM E1347 or ASTM E1164.

991-2.4 Retroreflective Sheeting.

The color of the retroreflective sheeting shall match the color of the tubular marker. The retroreflective sheeting shall be abrasion resistant Type IV or Type V and meet the requirements of Section 994. The retroreflective sheeting shall meet supplementary requirements for reboundable sheeting as stated in section S.2 of ASTM D4956. The sheeting shall wrap around the entire circumference of the tube and have a minimum vertical dimension of ~~6~~15 inches. The top of sheeting shall be 1-1/2 inches plus or minus 1/2 inch below the top of post.

991-2.5 Product Testing.

Manufacturers seeking evaluation of Standard Tubular Markers must include test reports from the National Transportation Product Evaluation Program (NTPEP) documenting the product meets the requirements of this Section. NTPEP impact testing must be performed on each substrate (concrete and open-graded friction course asphalt) in accordance with NTPEP Evaluation of Temporary Traffic Control Devices: Flexible Delineators for the category of High Speed Applications and for hot weather test temperature only.

Impact tests shall be performed only on tubular markers measuring 36 inches above the pavement surface.

Acceptable products are those meeting the following requirements after receiving an average of 50 bumper impacts per sample and an average of 50 tire impacts per sample:

1. Six out of eight posts shall self-restore to within 15 degrees list or lean from vertical.

2. All posts shall have a minimum of 50% of its cross-section, at any point along the post height, free of tears or cracks.

991-2.6 Approved Product List Submission Requirements.

Manufacturers seeking evaluation of Standard Tubular Marker products for inclusion on the APL shall submit an application in accordance with Section 6 and include the following documentation.

Table 991-2	
Documentation	**Requirement**
Product Photo	Displays the significant features of the product.
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Safety Data Sheet, Adhesive	SDS meeting OSHA requirements for product and manufacturer recommended installation materials as applicable.
National Testing Product Evaluation Program (NTPEP) product testing report	See Section 991-2.5
Installation Instructions	Include mounting surface preparations, and touch-up and repair procedures. Separate installation instructions are required for different substrates.
Product Sample	Upon request from the Department, submit a sample of the tubular marker mounting material or hardware. If the product is a system comprised of multiple parts, a sample of each part must be submitted.

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