



*Florida Department of Transportation*

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GOVERNOR

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KEVIN J. THIBAUT, P.E.  
SECRETARY

January 21, 2020

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

Re: State Specifications Office  
Section: **993**  
Proposed Specification: **9930202 Object Markers and Delineators.**

Dear Mr. Nguyen:

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

The changes are proposed by proposed by Paul Gentry from the Program Management Office to update the language for High Performance delineators, impact testing requirements and to remove references to ASTM D1925.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to [daniel.strickland@dot.state.fl.us](mailto: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/

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**OBJECT MARKERS AND DELINEATORS**  
**(REV 01-14-2019)**

SUBARTICLE 993-2.2.2 is deleted and the following substituted:

**993-2.2.2 Color:** The post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ~~ASTM D1925~~ or ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347.

SUBARTICLE 993-2.4.3 is deleted and the following substituted:

**993-2.4.3 Color:** The plastic post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ~~ASTM D1925~~ or ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164.

SUBARTICLE 993-2.5.1 is deleted and the following substituted:

**993-2.5.1 Dimensions:** The delineator shall have a minimum height of ~~36~~ 48 inches above the pavement surface and have a minimum ~~diameter dimension~~ of 2 inches.

SUBARTICLE 993-2.5.2 is deleted and the following substituted:

**993-2.5.2 Post Base:** ~~The base shall be manufactured to accommodate the replacement of the post.~~ The base shall be mechanically anchored to the pavement and be capable of withstanding ~~fifty~~ 50 vehicle impacts without damage.

SUBARTICLE 993-2.5.3 is deleted and the following substituted:

**993-2.5.3 Color:** The plastic post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ~~ASTM D1925~~ or ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164.

SUBARTICLE 993-2.5.5 is deleted and the following substituted:

**993-2.5.5 Impact Performance:** ~~The post, installed according to manufacturer's recommendations, shall be capable of returning to a vertical position plus or minus 5 degrees with no delaminating after receiving fifty vehicle impacts when tested according to National testing Product Evaluation Program (NTPEP). The NTPEP requirement of one half of the hits at~~

~~32°F is waived. All hits shall be at 65°F or greater. NTPEP data or independent test lab data shall be submitted for product approval. For acceptance purposes there should be no post failures and no more than two posts may list between 5° and 10° after receiving fifty vehicle impacts.~~ To resist an impact of a test vehicle, the post must restore to within 10 -degrees of vertical in any direction, and not have a crack or tear through more than 50% of its cross section. List/Lean must be measured from the point the post protrudes from the base to the top edge of the post. For acceptance purposes, there should be no post failures and no more than two posts may list between 5 -degrees and 10 -degrees after receiving fifty vehicle impacts.

Impact testing must be performed in accordance with NTPEP Evaluation of Temporary Traffic Control Devices: Flexible Delineators, for the category of High Speed Applications. Testing must be performed by a facility that is listed on the Laboratories Accredited to Crash Test Roadside Safety Hardware which can be found at the following URL: [http://tf13.org/Subcommittee\\_7\\_Test\\_Facilities.php](http://tf13.org/Subcommittee_7_Test_Facilities.php)

**OBJECT MARKERS AND DELINEATORS**  
**(REV 01-14-2019)**

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**993-2.2.2 Color:** The post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347.

SUBARTICLE 993-2.4.3 is deleted and the following substituted:

**993-2.4.3 Color:** The plastic post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164.

SUBARTICLE 993-2.5.1 is deleted and the following substituted:

**993-2.5.1 Dimensions:** The delineator shall have a minimum height of 36 inches above the pavement surface and have a minimum diameter of 2 inches.

SUBARTICLE 993-2.5.2 is deleted and the following substituted:

**993-2.5.2 Post Base:** The base shall be mechanically anchored to the pavement and be capable of withstanding 50 vehicle impacts without damage.

SUBARTICLE 993-2.5.3 is deleted and the following substituted:

**993-2.5.3 Color:** The plastic post shall be opaque white. The yellowness index shall not exceed 12 when tested in accordance with ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164.

SUBARTICLE 993-2.5.5 is deleted and the following substituted:

**993-2.5.5 Impact Performance:** To resist an impact of a test vehicle, the post must restore to within 10 degrees of vertical in any direction, and not have a crack or tear through more than 50% of its cross section. List/Lean must be measured from the point the post protrudes from the base to the top edge of the post. For acceptance purposes, there should be no post failures and no more than two posts may list between 5 degrees and 10 degrees after receiving fifty vehicle impacts.

Impact testing must be performed in accordance with NTPEP Evaluation of Temporary Traffic Control Devices: Flexible Delineators, for the category of High Speed Applications. Testing must be performed by a facility that is listed on the Laboratories Accredited to Crash Test Roadside Safety Hardware which can be found at the following URL: [http://tf13.org/Subcommittee\\_7\\_Test\\_Facilities.php](http://tf13.org/Subcommittee_7_Test_Facilities.php)