NOTICE

This Standard Special Provision (SSP) revises or modifies CDOT’s Standard Specifications for Road and Bridge Construction. These are the official instructions for its use on CDOT construction projects, and the Construction Engineering Services Branch has reviewed, approved, and issued it. Use as written without change. Do not use modified versions of this SSP on CDOT construction projects. Do not use this special provision on CDOT projects in a manner other than specified in the instructions without approval by CDOT’s Standards and Specifications Unit. The instructions for use appear below.

Other agencies using the Standard Specifications for Road and Bridge Construction to administer construction projects may use this special provision appropriately and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision on all projects that include steel or flexible delineator posts, reflector strips, guardrail reflector tabs, barrier reflectors, and median barrier reflectors.

**Add to Subsections of 612 of the Standard Specifications as follows:**

**DESCRIPTION**

**612.01** This work consists of the installation and furnishing of delineators and reflectors per these specifications and in conformity with the lines, grades and details shown on the plans or established.

**MATERIALS**

**612.02** Materials for the various types of delineators and reflectors shall be as follows:

(a) Delineators.

1. Steel Posts. Details for each type of delineator are shown on the plans. Posts shall conform to the requirements shown on the plans, and reflectors shall conform to the requirements in subsections 713.07 and 713.10.

2. Flexible Posts. Flexible posts shall be selected from CDOT’s Approved Products List (APL) and shall conform to the requirements in subsection 713.06.

(b) Reflectors

1. Reflector Strip. Reflector strips shall be selected from CDOT’s APL. Details for reflector strips are shown on the plans. Reflectivity shall conform to the requirements in subsection 713.07 and 713.10.

2. Guardrail Reflector Tabs. Details for the guardrail reflector tabs are shown on the plans. Reflectivity shall conform to ASTM D4956 Type IV.

3. Barrier Reflector. Details for barrier reflectors are shown on the plans. Reflectivity shall conform to the requirements in subsection 713.10.

4. Median Barrier Reflector. Details for median barrier reflectors are shown on the plans. Reflectivity shall conform to the requirements in subsection 713.10.

**CONSTRUCTION REQUIREMENTS**

**612.03** Spacing, location, color of reflectors and placement of delineator posts shall be as shown on the plans.

The Contractor shall install reflector strips in conformance with manufacturer’s recommendations.

The length of each reflector strip shall be 34 inches, unless otherwise approved. The Contractor shall adjust the spacing between reflector strips as recommended by the manufacturer to fit the location called for in the Contract. Cutting of the reflector strips will not be permitted.

 **METHOD OF MEASUREMENT**

**612.04** Delineators and reflectors will be measured by the actual number of the various types installed and accepted.

**BASIS OF PAYMENT**

**612.05** The accepted quantities will be paid for at the contract unit price each for the pay items listed below that are included in the bid schedule.

 Payment will be made under:

**Pay Item**  **Pay Unit**

|  |  |
| --- | --- |
| Delineator (Type\_\_\_) | Each |
| Delineator (Flexible) (Post Mounted) | Each |
| Delineator (Flexible) (Post Mounted) | Each |
| Delineator (Flexible) (Cup Mounted) | Each |
| Delineator (Flexible) (Surface Mounted) | Each |
| Delineator (Flexible) (Type\_\_\_) | Each |
| Delineator (Drivable) (Type\_\_\_) | Each |
| Delineator (Barrier) (Type\_\_\_) | Each |
| Reflector (Median Barrier) | Each |
| Reflector Strip (\_\_\_ Inch) | Each |

Concrete for anchor embedment will not be measured and paid for separately but shall be included in the work.

Surface preparation, brackets, fasteners and adhesive for reflector strips will not be measured and paid for separately but shall be included in the work.

Guardrail reflector tabs will not be paid for separately but shall be included in the work.

Payment will be full compensation for all work, materials, and equipment required to install delineators.

**Revise Section 713 “Traffic Control Materials” as follows:**

**Insert the following in Subsection 713.06 as shown:**

**713.06 Flexible Delineators**

1. Physical Properties
	1. Material. The post shall be manufactured from an impact resistant flexible material, and resistant to the following: U.V. exposure, cold weather temperatures, temperature fluctuation, and de-icing materials. The post shall be permanently sealed at the top and shall be date-stamped showing the month and year of fabrication. The date-stamp shall be on top of the post on the side facing away from traffic. The numerals shall be at least ¼ inch in height and shall be die-stamped or legibly stamped with permanent ink.
	2. Color. The post shall be Interstate Green in accordance with AMS-STD-595, Color Number 14109, unless otherwise specified. The post shall show no signs of delamination, distress, or discoloration.
	3. Dimensions.
		1. Length. The post shall provide a height of 48 inches above the edge of pavement and provide the required anchoring depth for Drivable Method of installation. The post length shall conform to requirements outlined in S-612-01 for all other methods of installation.
		2. Width. The post shall have a minimum width of 2 3/8 inches and a maximum width of 4 1/8 inches facing traffic.
2. Base Anchoring. The post shall be designed to facilitate a permanent installation resistant to overturning, twisting, and displacement from wind and impact forces. A metal anchor base shall be installed per CDOT Standard Plan S-612-01 or manufacturer’s recommendation. A concrete foundation shall be used for delineator support in soft soils per the plans or as directed by the Engineer.

The base anchor shall be capable of being driven into an earth shoulder with or without a pilot hole. Installation shall be accomplished with typical maintenance equipment.

1. Reflective Elements. Posts shall be shaped to accommodate the installation of reflective elements. Each reflective element shall be a 3 x 3 inch squared, Type IV or Type V reflective sheeting material meeting the requirements of subsection 713.10.

A Type I delineator shall have one (3 x 3 inch) reflective element on one side, a Type II delineator shall have two (3 x 3 inch) reflective elements on one side, and a Type III delineator shall have three (3 x 3 inch) reflective elements on one side. Reflective elements shall be placed in a straight vertical column starting one inch from the top edge of the delineator. Type II and III delineators shall have reflective elements separated by one inch vertically in the column.

All reflective elements shall be placed at the factory by the manufacturer prior to on-site delivery of delineators. The texture of the projected surface shall be smooth and suitable for the adherence of reflective elements without preparation other than wiping with a clean cloth damped with mineral spirits to remove oil-type contaminants.

Reflective elements shall be protected from scratches, abrasions, and other physical damage during shipping and base anchor driving by an easily removable “masking” sheet.

1. Workmanship. The posts shall exhibit good workmanship and shall be free of burrs, discoloration, contamination, and other objectionable marks or defects which affect appearance or serviceability. Each post shall be visibly free of bends or twists, prior to and after installation.
2. Performance Requirements. Posts shall be tested in accordance with NTPEP's Evaluation of Temporary Traffic Control Devices: Flexible Delineators. Posts shall be designed such that an installed post is capable of self-erecting and remain serviceable after being subjected to a series of direct impacts by a typical passenger sedan.

Posts installed in ground mount, side of roadway configurations shall be capable of withstanding a series of ten impacts into the traffic face of the post at a speed of 55 mph.

Posts installed in surface mount, head-on and/or channelizing configurations shall be capable of withstanding a series of 125 impacts into the traffic face of the post at a speed of 55 mph.

CDOT reserves the right to require additional testing to best meet the performance of Colorado’s environment.

1. Sampling and Acceptance. Prior to shipment of posts, the manufacturer shall submit a MASH self-certification letter to the Project Engineer.