

Standard Guidelines for Product Review
TRAFFIC DELINEATORS – TYPE 4 Alt 1;

Section 00840.10

September 23, 2009

00840.10 – TRAFFIC DELINEATORS – TYPE 4 Alt 1

We use five types of Delineators.

- Type 1 are flat, metal and designed to be driven into the ground.
- Type 1U are flat, metal, utility grade and designed to be driven into the ground.
- Type 2 are flat and designed to be driven into the ground.
- Type 3 are round and designed to be driven into the ground.
- **Type 4 Alt - 1 are flat and designed to be mounted on guard rail posts.**
- Type 4 Alt - 2 are flat, metal and designed to be mounted on guard rail posts.
- Type 5 are barrier markers, designed to be mounted on top of concrete barrier.

To submit a Type 4 Alt 1 Delineator for review:

- Submit a completed [Preliminary Information Form for Product Evaluation](#).
- Submit 6 samples, a set of shop drawings, brochures, pictures, and independent testing to cover the following items described below:
 1. General
 2. Marking
 3. Dimensions
 4. Anchoring
 5. Color
 6. Cold Resistance
 7. Weatherometer
 8. Retro-Reflectivity of Reflective Sheeting

It is your responsibility to determine if your product is crash-worthy in compliance with NCHRP Report 350. To determine this crashworthiness, you should use crash tests and or an engineering analysis. You can find information about this at:

http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/QPLInfo.shtml#NCHRP_Report_350

Submit a “Self-Certification” form indicating compliance with [NCHRP 350 Category 1](#).

You can find our version of a form to do this at:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/Docs/SelfCertificationNCHRP350Category1.pdf>

Ensure that your installations will comply with TM 570 of the [ODOT Standard Drawing](#),

[http://www.oregon.gov/ODOT/HWY/ENGSERVICES/traffic_drawings.shtml#Traffic_500 Pavement Marking](http://www.oregon.gov/ODOT/HWY/ENGSERVICES/traffic_drawings.shtml#Traffic_500_Pavement_Marking)

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Specifications:

- (1) General** - Material for guardrail mounted flexible delineators shall:
 - Be flexible, durable plastic, resistant to impact, ultraviolet light, ozone, hydrocarbons, and other effects of atmospheric weathering.
 - Exhibit good workmanship and be free of burns, discoloration, contamination and other objectionable marks or defects which affect appearances or serviceability.
- (2) Marking** - Mark the top of the post on the side away from traffic with the manufacturer's name, symbol or brand and the month and year of fabrication. The legend shall be at least ¼" in height and shall be either die stamped or legibly stamped with permanent ink.
- (3) Dimensions** - The post shall have a width of 3" ± 1", facing traffic and about 27" tall. The top 12" of the Type 4 Alt 1 delineator posts shall have a uniformly smooth, flat surface at least 3" by 12" in size to mount the reflective material. The 3" x 12" surface may be slightly rounded, provided the minimum brightness value is not significantly reduced.
- (4) Anchoring** - The delineator post shall firmly mount to metal, wood, or plastic posts. Detailed installation instructions shall be provided by the delineator manufacturer.
- (5) Color** - The delineator posts shall be either yellow in color or opaque white as designated. The yellowness index of the white posts shall not exceed 12 when tested according to ASTM D 1925 or E 313. The daylight 45°, 0° luminous directional reflectance shall be a minimum of 70 when tested according to ASTM E 1347. Yellow posts shall meet the requirements for Highway Color Tolerance Chart Color No. 13538 of Federal Standard 595a.
- (6) Cold Resistance** - Condition one delineator post a minimum of two hours at -5 °F ± 3 °F in an environmentally controlled test chamber or cold box. If possible, testing should be performed in the environmental chamber.

Test the cold conditioned post by dropping a 2" diameter tup (mass approximately 2.37 pounds) a distance of 5' through a virtually frictionless vertical guide to impact the surface of the post. Place the post in a horizontal position with the traffic face up and supported on cylindrical bearings approximately 6" in diameter, spaced 27" apart. Subject the post to five impact tests concentrated at the midpoint of the post. Cracking or splitting of the post shall constitute failure. If a cold box is used the test shall be completed within two minutes of removal from the cold box or return the post to the cold box for one hour before completing the test.

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- (7) **Weatherometer** - The delineator post material shall be exposed for 1000 hours in a weatherometer conforming to ASTM G 26, (Method 1, standard cam, 50 - 60% relative humidity, 145 °F black-panel temperature) with no significant yellowing or darkening of the white posts or change of color of the yellow posts and no significant loss of pliability.
- (8) **Reflective Sheeting** - Retro-reflective sheeting shall meet the following as tested in accordance with ASTM D4956:

Entrance Angle	Observation Angle	Coefficient of Retroreflection (cd/lx•m ²)	
		White	Yellow
-4°	0.2°	250	170
+30°	0.2°	150	100

Mount the reflective sheeting on the posts as detailed on the plans by an approved positive means which has adequate strength to prevent loss of the reflective material during the life of the post.

Please forward your information and/or questions to:

OREGON DEPARTMENT OF TRANSPORTATION
ATTN: MIKE DUNNING (503) 986-3059
MATERIALS LABORATORY
800 AIRPORT RD SE
SALEM OR 97301-4798
<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/QPIndex.shtml>